NOVEMBER 1954

# American Engineer

## IN THIS ISSUE . . .

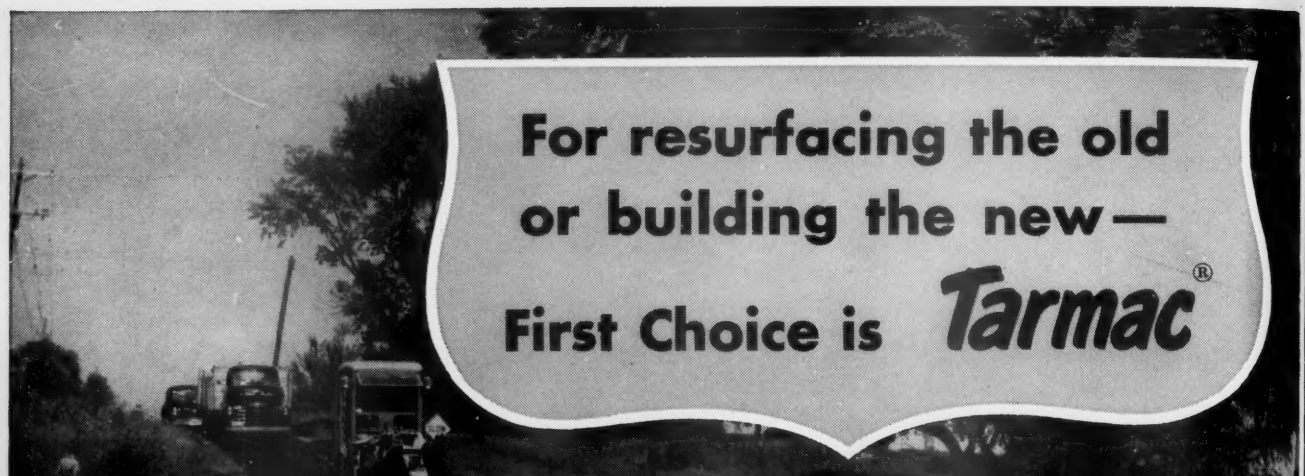

- **FREE ENTERPRISE—AND THE PROFESSIONAL MAN**
  **By G. Keith Funston,**
  ***President, New York Stock Exchange***

UNIV OF MICH
LIBRARY SCHOOL
ANN ARBOR MICH OF ENGR

**Engineers Who Invest Help Their Profession As Well as Themselves, Mr. Funston Says.**

## . . . *Also*


- **The Newcomen Society—Study in History**
  **By J. Foster Petree**
- **Why Bother With Ethics?**
  **By Sol M. Isaac, Member of the Bar**



# For resurfacing the old or building the new— First Choice is Tarmac®

● Yes, with many highway superintendents, TARMAC is always "first choice" in road building. And there's good reason. TARMAC cuts labor costs because it speeds up construction. It penetrates quickly . . . mixes easily with local aggregates . . . cuts through dust or moisture films to coat the aggregate immediately—adhere to it quickly, firmly.

TARMAC road surfaces are durable and skid resistant, yet smooth to ride on. They resist the stripping action of water without the use and extra cost of additives, and they even withstand the softening effect of gasoline and oil drippings. Easy-to-use TARMAC is made to stand up for a long time under the roughest conditions.

Bring your highway maintenance and construction problems to your TARMAC representative. He'll be happy to help you without charge or obligation. And for complete information on all the advantages of using TARMAC, write to us.

**Repair Roads in any weather WITH**

**Komac® PREMIX**

With this new premix, you can repair or resurface roads all year round—rain or shine, hot or cold. You can stockpile Komac Premix for over a year and it's still workable. When needed, just load into trucks—no heating required. Write for free booklet.

KOPPERS® **Tarmac MAKES BETTER ROADS**

**KOPPERS COMPANY, INC., Tar Products Division, Dept. 1115-T Pittsburgh 19, Pennsylvania**

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.

# Letters

## *Behind the Unions . . .*

Dear Editor:

I have read with considerable uneasiness about the unionization of technicians and engineers in letters and articles published in the AMERICAN ENGINEER. I do not consider it right or necessary that any group of technical engineers should have any organizations outside of their technical associations and the NSPE (National Society of Professional Engineers). An engineer, to produce properly, must be highly individual, free to think and experiment, and not regimented in any manner as he would be in a union. His work is highly creative and thrives best in an atmosphere of competition.

Just what forces are acting to unionize those in the profession of engineering is not clear to most of us, and we would appreciate an article in a future issue of the AMERICAN ENGINEER.

On page 30 of *Business Week* for September 11, 1954, is an article entitled "Labor Supply—It's Looser Now." This article, by classifying technical engineers with labor that is highly unionized, tends to promote the thought that mechanical, electrical, civil, and all other kinds of engineers, geologists, and any kind of a technician are material for labor unions.

It is suggested that all professional engineers who read this letter register their protest with the editor of *Business Week*.

C. H. ECKEL, P.E.,
Houston, Tex.

## *More Societies . . .*

Dear Editor:

The fragmentation of the engineering profession continues at an accelerating rate apparently in spite of all efforts at unity. It is disheartening to read (*Consulting Engineer*, June 1954, page 62, and July 1954, page 55) of the formation of more Associations of Consulting Engineers in Oklahoma and Minnesota, adding two more societies to the hundreds already in existence.

What is the reason or necessity for the formation of more such Societies of professional engineers? Can it be that the National Society of Professional Engineers is failing to meet the needs of these consulting engineers, or that it does not provide some service they think they need?

The National Society of Professional Engineers has for one of its primary objectives the unification of all engineers for their professional and economic advancement. It *is* the engineering profession, and being a democratic organization responsive to the wishes and needs of its members, it can meet all their business and professional needs.

Something is wrong here, then, and some effort should be made to find out what it is, and then to incorporate these new Societies somehow into the structure of NSPE by absorbing them completely or as local sections or chapters of NSPE.

LEONARD LASKY, P.E.,
Brooklyn, N. Y.

## *More Sturgis . . .*

Dear Editor:

The use of the term "mental discipline" or "mental discipline of the three R's" labels General Sturgis (AMERICAN ENGINEER, May 1954) and hence NSPE as being uninformed. To an educator it is analogous to hanging out a red flag in front of a bull. This old theory of "mental discipline" has been upheld by no psychologist since 1910. The theory very briefly was that the training of the three R's actually trained the mind and this training carried over to all other fields. By the same token, if you studied Latin you would become an excellent scholar of English. In a few specific cases there is a carry over, i.e., a lot of English is derived from Latin but certainly if the same amount of energy were spent studying English the student would be a thousand times better scholar. So as a *general* carry-over, numerous research data have revealed there is no such thing as "mental discipline." The term is archaic.

Further, following the General's article, what's wrong with having well-adjusted children? We can achieve this and still give excellent training in mathematics and the sciences. It might even be argued that 8 per cent of the high school students if really properly trained would more than fill engineering manpower requirements. The problem seems to be motivating interest in engineering. . . .

If the publicity is going to put the educators of the United States against you it is not *good*. Are we after publicity or are we trying to do a job? It seems to me that we can do a better job of publicity if we deal in fields of agreement rather than trying to start a fight with somebody.

These educators will be willing to cooperate a whole lot more if we would champion some of their causes. A good deal of the trouble in small towns is a shortage of funds that necessitates hiring teachers for multiple teaching jobs. Many times the math teacher is not properly trained to teach math. We could do something about this on the local level.

Consider the publicity possibilities nationwide of offering engineering scholarships? Sure, they cost money. What good publicity doesn't? Besides NSPE would be promoting its own cause by creating interest in the scholarships.

We in Idaho have produced a taped radio program which has been broadcast over five Idaho broadcast stations. We have attempted to satisfy the considerations of discussion in fields of agreement and cooperation with education. . . .

ROBERT E. BAIRD, P.E.,
Pullman, Wash.

## *For Mr. White . . .*

Dear Editor:

I would like to try to help Mr. Edward J. White, P.E., of Newark, N. J., (whose letter appeared in the September issue of AMERICAN ENGINEER) find an answer to his problem of how to advise his 18-year-old son.

To begin with, let me say that I know from first hand about shoddy plans and specifications by so-called architects and engineers. I am a structural engineer for a steel fabricator and many of the plans and specifications that come to our engineering department certainly do nothing to arouse admiration for my profession.

But I would say that this is about on a par with the average work turned out by the trades. It used to be that by getting a union man to do your work you were assured of a skilled craftsman. In general we all know that this is not necessarily so today. Also Mr. White refers to the terrifically high wages paid to the union electrical workers and low wages paid to engineers

(*Continued on page* 5)

REVOLVATOR
*RED-GIANT*
features
Safety-Ease

Durability — built in by 50 years of Revolvator Co. experience—is still the fundamental of the Red Giant liftruck line. Maneuverability, plus the safety of their exclusive double stroke mechanism, make the models shown leaders in their fields. There is a Red Giant liftruck available for every use—for every capacity.

*Write for the full facts today.*

**REVOLVATOR CO.**
8782 Tonnele Ave. North Bergen, N. J.

*Reach top-shelf items quickly, easily,* SAFELY!

Speed and ease in reaching high spots in STOCK BIN, TOOL CRIB, FILE ROOM or other storage space is important.

STEP-N-FETCH

...a step and handle set, easily attached to standard shelving (wood or steel), provides a time saving handling method.

STEP-N-FETCH is durable steel, cadmium plated, with rubber tread. Made in two models — one a rigid step, the other a flip-up model.

RIGID STEP
Model 20 2.95

FLIP-UP STEP
Model 30A 3.95

*Write today*

NARVA PRODUCTS, INC.
70 East 45th Street, New York 17, N. Y.

# American Engineer

NOVEMBER 1954

Kenneth E. Trombley, Editor

Mary Margaret Milbrath, Assistant to the Editor

Vincent F. Waters, P.E., Chairman, Publications Committee, NSPE

**N.S.P.E. Officers**

Clarence T. Shoch, P.E., Pres., 901 Hamilton Street Allentown, Pa.

Robert J. Rhinehart, P.E., Vice Pres. Arkansas Power & Light Company Pine Bluff, Ark.

Louis F. Frazza, P.E., Vice Pres., 225 Bamford Avenue Hawthorne, N. J.

M. F. Wooten, Jr., P.E., Vice Pres., 215 Latta Arcade Charlotte, N. C.

Orland C. Mayer, P.E., Vice Pres., Idaho Power Company Boise, Idaho

John B. Jardine, P.E., Vice Pres., Post Office Box 1429 Fargo, N. D.

Virgil E. Gunlock, P.E., Vice Pres., 525 Arlington Place Chicago, Ill.

T. Carr Forrest, Jr., P.E., Past Pres., 803 Praetorian Building Dallas, Texas

Russell B. Allen, P.E., Treas 4610 Hartwick Road College Park, Md.

Paul H. Robbins, P.E., Ex. Dir. 1121 15th Street, N. W. Washington 5, D. C.

*"No matter how well organized or how technically sophisticated we become, the fact is that progress originates in creative thought, a purely personal attribute."*

—CRAWFORD H. GREENEWALT
President, E. I. du Pont de Nemours and Company

ABPA

Member, Business Publications Audit

## •SPECIAL ARTICLES

Free Enterprise—and the Professional Man ..... 9
By G. Keith Funston, President, New York Stock Exchange. How and Why Professional Engineers Should Invest.

The Newcomen Society—Study in History ..... 12
By J. Foster Petree, Director and Former President, Newcomen Society of Great Britain.

Why Bother With Ethics? ..... 14
By Sol M. Isaac, Attorney. An inspirational account of why ethics are so important to the professional.

Packed Agenda Acted Upon At Fall Meet ..... 17

Special AE Report: Salaries in the Research Field ..... 24

## •REGULAR FEATURES

Letters ..... 3
Professional News Briefs ..... 6
From Washington ..... 21
Professional Postscripts ..... 26
Book Looks ..... 28
NSPE Believes—New Hqs. Bldg. Financed By Members 29
With Our Members .... 30 Strictly Business .... 41

Classified ..... 25
Advertisers' Index ..... 37
Professional Directory ..... 32, 33, 34, 35
What's New—New Products of Interest ..... 42

**ADVERTISING INFORMATION:**

R. A. Oliver, Advertising Director
American Engineer, 1121 Fifteenth Street, N.W., Washington 5, D. C.
Telephone: ADams 4-1622

NEW YORK:
Austin LeStrange Co., Inc.
420 Lexington Avenue
New York 17, N. Y.
Telephone: MUrray Hill 5-3277

CHICAGO:
LeStrange Co., Inc.
185 North Wabash Ave.
Chicago 1, Illinois
Telephone: DEarborn 2-0248

The American Engineer is published monthly by the National Society of Professional Engineers, 1121 15th St., N. W., Washington 5, D. C. Entered as Second Class Matter at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1954, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to members of NSPE and its Affiliated Societies; $3 per year in advance to non-members in U. S. A. and its possessions, Canada, and Mexico. Foreign, $4 per year. Single copy, 35c.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS FOUNDED 1934

## Letters

(*Continued from page 3*)

and their apprentices. Have you ever asked yourself why this is so? Also, this condition under present world conditions, is not only likely to stay the same, but to continue to progress in the same direction. But of course if the engineers all join a union then they could refuse to draw plans unless they got higher wages. And if everybody joined a union we could all make big wages and be right back where we started from. Everything would cost so much that high wages would amount to nothing.

Now what is the principle by which unions get wage increases? The principle of *force*. Call it what you may, legalize it however you will, it is still mob force that rules. Now where mob force rules, brawn and not brain is at a premium. And, although brawn and brain must go together to accomplish continued progress onward and (we hope) upward, the brain must lead over brawn or we are on the skids toward another dark age.

Does the dark history of Roman civilization's downfall point a warning finger in our direction? Remember that the mobs had become so strong that they demanded entertainment and feasting so much that there was no one left to do the work? The rulers, to stay in power, had to follow the whimseys of the mob so Rome became so soft she was overrun by the barbarians from the North. We think it couldn't happen in America, at least not in our lifetime. But Louis XVI and his Queen Marie Antoinette thought their deluge would come after their time, but it didn't wait. The French Revolution destroyed them.

(*Continued on page 40*)


Timepiece of Incomparable Excellence

TORELLI

*The Gift of Prestige*

for that V.I.P. on your list

18 KARAT GOLD

*$100*

Over a century of fine watch making is reflected in this split-second timing masterpiece. Incabloc Shock Resistant Movement is also anti-magnetic. Special Features: 3 Integrated Dials, • Stop-start Push Button Operation • Raised Gold Numerals • Built in Telemeter and Tachymeter. The precision movement registering down to 1/5th second tolerances, is encased in fine 18 Karat Gold. Truly a rare gift . . . never to be forgotten by that V.I.P. Only 100 V-25 TORELLI Chronographs are produced annually. Tax paid—$100. Also available with custom diamond-set dial, on 2 weeks' notice, at $750. MAIL ORDERS CHEERFULLY FILLED.

TORELLI FRERES

352 Fourth Avenue (87-M-233), New York 10, N. Y.



***the SYSTEMS ENGINEER at RCA***

Systems engineers conduct studies to determine operational requirements . . . create and synthesize military equipment concepts . . . guide development of new integral elements . . . conduct evaluation programs to determine operational effectiveness.

***You may qualify!*** Professional ***ability*** to create and analyze over-all complex systems and ***experience*** in electronic or electro-mechanical systems engineering required.

*There are several opportunities now in:*

***AVIATION ELECTRONICS***
***INFORMATION HANDLING***
***COMPUTERS • RADAR***
***COMMUNICATIONS***
***MISSILE GUIDANCE***

*Send a complete resume of your education and experience to:*

**Mr. John R. Weld, Employment Manager**
**Dept. B-484K Radio Corporation of America**
**Camden 2, New Jersey**

RCA Tmks. ®

**RADIO CORPORATION OF AMERICA**
***ENGINEERING PRODUCTS DIVISION*** ***CAMDEN, N. J.***

# Professional News in Capsule Form

**National Science Foundation Begins Industrial Research Survey • Carnegie Tech Reports Upswing in Applications • Stevens Tech Survey Finds Graduates Doing Well • Dr. Killian Heads Manpower Study Committee • National Society Members Make News • Other Items of Interest**

Questionnaires have recently been sent to approximately 12,000 industrial concerns requesting information on their research and development activities, according to word from Dr. Alan T. Waterman, director of the National Science Foundation. The questionnaires represent the first phase of an NSF survey of industrial science, which is being conducted by the Bureau of Labor Statistics, Department of Labor.

Dr. Waterman points out that when the study is completed, "The findings should be valuable to companies in planning and appraising their own research programs, besides contributing greatly to the formulation of national policies for the strengthening of scientific research."

The information compiled from the questionnaires will provide the basis for estimates on a nation-wide plane of the amounts spent for the conduct of research by size of companies and by industry groups; of the source of these funds by major economic sectors; and of the amount spent by companies to finance research conducted elsewhere, as in universities and research institutes. It will also permit the comparison of research expenditures to other industrial costs. Furthermore, the answers to the questions will furnish in considerable detail data on the use of scientific and technical manpower in industrial research and development.

* * *

*Applications for admission to Carnegie Institute of Technology this fall were 25 per cent greater than last year, the largest number since the general dip following the rush to college in the post-war period, according to an announcement from the school. Applicants numbered almost 3,500, according to Dr. John M. Daniels, admissions chairman; and of these, 889 new freshmen and transfer students were admitted.*

*Because of fixed capacity, Dr. Daniels pointed out, the Institute can take no more than approximately 900 new students each year. Freshmen registration of 782 students represented an increase of almost eight per cent over last year's total, he also said.*

* * *

Interesting statistics about a representative group of engineers have been provided by a recent survey of the alumni of the Stevens Institute of Technology, Hoboken, N. J. Study of the questionnaires sent to all of the college's 5,300 living alumni shows that 67 per cent of the graduates (classes of 1902 through 1952) are now in policy-making or decision-making posts in industry. This includes 19 per cent who are presidents and vice-presidents of companies or are owners or part-owners of the businesses with which they are associated. The remaining 48 per cent hold such titles as manager, plant manager, director of research, chief engineer, or supervisor.

Not all the graduates, however, have remained in engineering or engineering-allied fields. There are 18 per cent of the alumni who report themselves doing well in banking, finance, insurance, and other remote fields, including law, medicine, dentistry, and the clergy.

* * *

*Dr. James R. Killian, Jr., president of the Massachusetts Institute of Technology, has been appointed to head a panel of engineers and scientists studying methods to mobilize scientific resources more effectively in the event of a national emergency, according to an announcement by Arthur S. Flemming, director of Defense Mobilization.*

*The study, which is complementary to other evaluations now being made in the scientific manpower field, will be completed in several months. After review by the ODM Science Advisory Committee and Mr. Flemming, the Killian Committee's recommenda-*


**ASSURE ACCURACY**
**REDUCE COSTS**
by using
**WARREN-KNIGHT**
**TRANSITS and LEVELS**

Special features of design and construction assure the greatest value per dollar of investment.

A MODEL FOR EVERY NEED — 10 DAY TRIAL

**SERVICES FOR THE ENGINEER**

*Instruments*—New or Rebuilt
*Engineering Equipment* and Supplies
*Rental*—any length of time
*Repairs*—any make
*Assistance*—by P.E. in making your selections

*Send for free Catalog AE-411*

WARREN-KNIGHT
136 N. 12th St., Phila. 7, Pa.

I can't see any reason why it won't pass, Al—Oh, oh—here comes one now!

*tions and findings will be submitted to President Eisenhower.*

* * *

**Crosby Field of Brooklyn, N. Y., and Dominick F. Cafiero of Bayside, N. Y., both NSPE members, were among the regional certificate winners in the American Society of Mechanical Engineers' recent contest to find a suitable symbol and motto for its 75th anniversary celebration in 1955. Mr. Field's certificate was given in the symbol classification, Mr. Cafiero's in the motto division.**

**Andrew T. Lemmens, design engineer with The Gleason Works, Rochester, N. Y., won first prize for his design of the symbol. Dr. David H. Ray, retired mechanical engineer of North Tarrytown, N. Y., received the first award for his motto—"By Truth and By Service."**

* * *

*Paul F. Rice of Detroit, a prominent member of the Michigan SPE and NSPE, has been appointed technical director of the American Concrete Institute. To accept the new assignment, Mr. Rice leaves a post as structural field engineer for the Michigan District of the Portland Cement Association. He is a civil engineering graduate of North Dakota State College and has completed graduate studies at M.I.T. and the University of Michigan.*

* * *

**Professor Wyllys G. Stanton, Sr., recently a member of the faculty of the University of Alabama, has accepted a new professorship in the Department of Industrial Engineering at The University of Buffalo. Professor Stanton has long been active in NSPE affairs and is a former treasurer of the Ohio Society.**

* * *

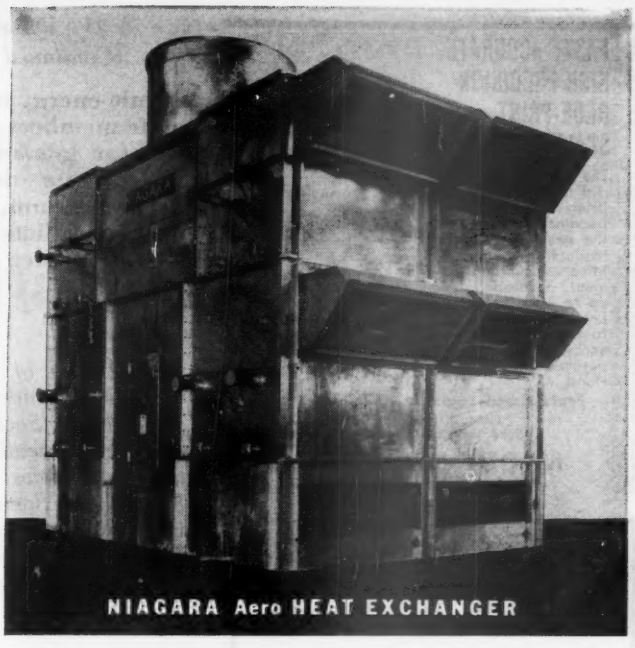
*Three Ohio Society members have been named to a special committee to study preliminary reports on engineering and feasibility on part of the Ohio Turnpike project by Maj. Gen. Robert S. Beightler, USA (Ret.), executive director of the Turnpike Commission. The three Ohioans are: Col. Charles P. Smith, deputy executive director; Ralph J. Lehman, principal assistant to the chief engineer; and C. H. Makeever, assistant chief engineer. All three men are residents of Columbus.*

* * *

**Walker L. Cisler, president of The Detroit Edison Company and of the Atomic Industrial Forum, has announced that at the Forum's recent annual meeting, Admiral Earle W. Mills, president of Foster Wheeler Corporation, was elected a vice president while other officers of the atomic study group were re-elected. In addition, Broderick Haskell, vice chairman of Combustion Engineering, Inc., and J. L. Atwood, president of North American Aviation, Inc., were elected directors of the Forum.**

**Mr. Cisler also announced that the board of directors of the Forum had changed the membership requirements to permit citizens and organizations of other countries having contractual arrangements with the United States affecting uranium or**

*(Continued on page 8)*


**Thirty Million B.T.U. CAPACITY**

**with Precise Control of Temperature in Cooling**

The NIAGARA Aero HEAT EXCHANGER cools liquids and gases by evaporative cooling with atmospheric air, removing the heat at the rate of input, controlling temperature precisely. You save 95% of cost of cooling water; you make great savings in pumping, piping, power; quickly recover your installation cost.

You can cool and hold accurately the temperature of all fluids, air and gases, water, oils, solutions, chemical intermediates, coolants for mechanical, electrical and thermal processes. You obtain closed system cooling free from dirt. You solve all the problems of water availability, quality or temperature.

In CHEMICAL PROCESSES this is successfully used in cooling liquids and gases, chemical reactions, condensing distillations and reflux cooling.

Write for complete information; ask for Bulletins 120 and 124. Address Dept. AE.

**NIAGARA BLOWER COMPANY**

**405 Lexington Ave. New York 17, N. Y.**

*District Engineers in Principal Cities of United States and Canada*

**FAST, ACCURATE, HIGH PRECISION BLUE-PRINT SCALING**

The time-consuming difficulties of blue-print scaling have become a thing of the past with the introduction of the Minerva curvimeter. This high-precision instrument, developed by M. Ducommun Co, **records up to 2400 feet of straight or curved distances. Lateral push button returns hands to zero.** Simple to operate, easy to handle; gives split-second, accurate measurements, valuable in estimating, purchasing, construction, engineering applications.

**Professional Engineer Price . . . $14.75**
**(Reg. List price $19.75)**
**Send remittance and order to**

**M. DUCOMMUN CO.**
**580 FIFTH AVE., NEW YORK 36**

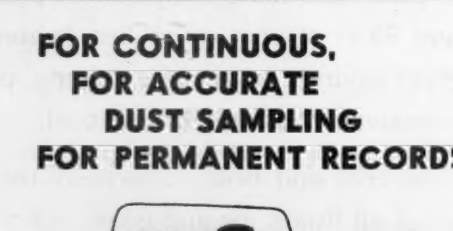
**FIRE SIGNALING SYSTEMS**

● Engineers, Designers, and Manufacturers of Electrical Systems for the Protection of Life and Property from Fire

**See advertisements in Penna. Society Year Book, N. J. P. E., and N. Y. P. E.**

**ACME FIRE ALARM CO., INC.**
**C. W. Mitchell, P. E. *President***
**106 Seventh Ave., New York 11, N. Y.**

**FOR CONTINUOUS, FOR ACCURATE DUST SAMPLING FOR PERMANENT RECORDS**



**KONISAMPLER**
**(pat. pend.)**

Employs principle of thermal precipitation. Light weight — quiet — all electric Automatic timer — will also operate continuously — secures particulate matter suitable for microscopic, electron microscopic or visual and for permanent records on standard glass slides.

**Cost (complete) with carrying case .....$225.00**

***Send for descriptive brochure K-1***

**Designer and manufacturer of continuous gravimetric and oscillating types of thermal precipitators**

**JOSEPH B. FICKLEN III**
**1848 East Mountain St. Pasadena 7, California**

## Briefs

*(Continued from page 7)*

**atomic energy information to become members. Alexander Wust, director general of the Societe d'Electricite de l'Escaut, Antwerp, Belgium, has been elected the first affiliate or overseas member, Mr. Cisler stated.**

* * *

*C. H. Rex of Marblehead, Massachusetts, a member of the MSPE and the National Society, was one of ten engineers recently honored by election as Fellows of the Illuminating Engineering Society. Mr. Rex is a development engineer in the General Electric Company's Lighting and Rectifier Department.*

* * *

**"Teaching and Research Build the Future" is the theme that had been selected for the centennial celebration of New York University's College of Engineering. The opening centennial convocation was held October 12th on the University Heights campus.**

* * *

*The Oklahoma Institute of Technology of the Oklahoma Agricultural and Mechanical College, Stillwater, Okla., has announced the appointment of Dr. Robert Henry Dodd as professor and head of the School of Chemical Engineering.*

* * *

**A comprehensive study of the opportunities for nonmilitary use of atomic energy and of the most effective methods of public and private organization for use of this new resource has been announced jointly by two private, nonprofit organizations — Resources for the Future, Inc., and the National Planning Association, both of Washington D. C. With $200,000 provided by Resources for the Future, the NPA will study the economic problems and policy issues raised by the rapid increase in technological knowledge of atomic energy and its potential contribution to industrial and agricultural development and improved standards of living in the United States and abroad. The study is expected to take two years.**

* * *

*E. C. Clemens of Cannelton, Indiana, a member of NSPE and the Indiana Society, has been elected a trustee of The National Clay Pipe Research Corporation. Mr. Clemens is treasurer of the Cannelton Sewer Pipe Company.*

*The new president of the research organization is Clark Sutherland of Akron, Ohio, who is vice president of The Robinson Clay Product Company of that city.*

* * *

**American taxpayers were saved $65,000,000 during the first six months of 1954 due to the use of standards by the military services, according to R. V. Vittucci, standardization planning engineer with the U. S. Navy Department's Bureau of Ships. Mr. Vittucci's statement was made during the third annual meeting of the Standards Engineers Society, which was held October 1-2 at Haddon Hall, Atlantic City, N. J.**

* * *

*Former President Herbert Hoover and Vice Admiral C. F. Hussey, Jr., who is now managing director of the American Standards Association, have been elected to the status of Fellow by the Standards Engineers Society. They are the first recipients of the Society's newly-established highest award.*

*In addition, the honor was also bestowed posthumously on the late Dr. Paul Gough Agnew.*

* * *

**The Franklin Medal, highest scientific award of The Franklin Institute, Philadelphia, Pa., has been bestowed on Dr. C. E. Kenneth Mees of Rochester, N. Y. Dr. Mees is vice president in charge of research for the Eastman Kodak Company and a world-famous photographic authority.**

*Here's Good Advice . . .*

# Free Enterprise—and the Professional Man

By G. KEITH FUNSTON,
*President, New York Stock Exchange*

**Only 13% of All Engineers Own Stock in Publicly-owned Corporations. Why Don't Professional Men Invest?**

SEVERAL years ago the New York Stock Exchange asked the Brookings Institution to undertake the first comprehensive census of the shareowning population of the United States. The Exchange had as an objective the spread of public ownership of industry—not ownership by the Government but direct ownership by the individual — and we needed the facts which would enable us to plan intelligently how to attain our objective. The Brookings study, which was a monumental research job, gave us those facts—who owned shares in publicly owned corporations and, more important from our viewpoint, who did not.

We found out how many people owned stock, their age, their sex, income, education, place of residence, their investment preferences. The total number of shareowners came as something of a shock to us. Estimates had ranged mainly between 10,000,000 and 20,000,000 people — the actual total was 6,490,000, or only 4.2 per cent of the entire population.

When I was invited to contribute an article to the AMERICAN ENGINEER, I checked the occupational breakdown of shareowners to see how engineers ranked. I discovered that engineers were included in the broad category of "professional persons—technical fields," a category embracing 2,270,000 persons. Of these only 13.2 per cent, or 300,000 people, were shareowners. These 300,000 people represented just 4.6 per cent of the total shareowning population.

The classification, "professional persons—technical fields," included such occupations as engineers, architects, auditors, accountants, writers, chemists, librarians and photographers. So I decided to find out a little more about engineers.

I discovered there are around 633,000 engineers employed at a professional level. About 30 per cent receive an annual salary income of $7,500 and above, while 44 per cent earn between $5,000 and $7,400, according to the latest available information. Using the Brookings figures, I estimated that of 633,000 engineers only 13 per cent, or roughly 80,000, own stock in publicly-owned corporations.

There's something wrong here, it seemed to me. I can think of few occupational groups which are more directly involved in creating the Nation's industrial wealth. As builders and managers of industry, the members of the engineering profession occupy a key position in our economy. They know by training, by experience, by high professional standards, that they are building for today and for the future. They know their product is good—then what could be more natural than a desire to share in the proceeds of the wealth they have created, to own their share of American business?

**The author says that professional groups, men who by education and attainment should know most about the investment process, sometimes know the least.**

LD WKU MUY P GK SOV CBS.B SPP
46¼ 19¾.B.19⅝..0.⅞ 28½ 61¾ 2s14¼ 4s47½.½ 77 2s

**The New York Stock Exchange in action.**

JUST a few days ago I was reading an analysis of a new industrial giant formed by the merger of two old companies. The analyst was particularly impressed by the fact that the top management and directors of the company were unusually research-minded. He interpreted this as a highly favorable omen for the future success of the company. Yet I wonder to how many of the engineers carrying out research for this one company, designing and building its plants, projecting its future — to how many has it occurred that they can share in the rewards of their own handiwork?

I am not trying to single out any particular group as being unaware of the advantages—and the risks—of share ownership. But I am seriously concerned that professional groups, men who by education and attainment should know most about the investment process, sometimes know the least.

Now, why should this be so? I believe that the answer lies chiefly in our high schools and colleges. In 1951 the Brookings Institution published "A Survey of Economic Education," in which this conclusion was reached:

"It is clear that the organized educational institutions have not adequately met the educational requirements in this field. Only about 25 per cent of college students enroll in economics courses. In the high schools less than 5 per cent of those who graduate have had a course in economics; and the social science texts, which contain a smattering of economics—commonly written by individuals without training in this field—provide very poor substitutes. Even less attention is given to economics in the private business schools."

I suspect the situation is actually worse than the above indicates because in too many schools economics is treated as the dismal science and few such courses have any relevancy to the financial problems which the adult must inevitably face.

The net result is pretty shocking. Apparently at least three out of four college students start their careers with little or no knowledge of the functioning of our system of free and private enterprise and with still less knowledge of how to cope with their own financial affairs.

IN THE case of the professional man or woman the damage is compounded. At the higher educational levels students tend to become immersed in their own particular fields; the engineering student has enough to learn without worrying about stocks and bonds.

Fortunately the seriousness of this gap in the educational process is being recognized by more and more educators and industrialists. The Joint Council on Economic Education has done effective pioneering work in evaluating economic illiteracy in our schools—not only at the high school and college levels but right down to our elementary schools—and in guiding teachers toward establishing a sound and adequate program of economics teaching. It is interesting to note that roughly three-quarters of the Council's funds now come from industry although labor's and agriculture's share is constantly increasing.

Numerous individual corporations are contributing substantially of their money, time and talent in an effort to tell their employees, their customers, their shareowners just how our economy works and the essential part played by individual investment.

The Stock Exchange itself is thoroughly aware of the work to be done and virtually our entire public relations and advertising program is designed to get across to the public the fundamentals of investment and the work of the Exchange.

One of our most rewarding operations in this area is sponsored by the Joint Committee on Education, which is comprised of various segments of the financial industry including the Exchange. Each year the Committee brings to Wall Street a dozen or so economics teachers from colleges and universities to give them a short but intensive view of the real Wall Street. This group in turn nominates outstanding students for what might be termed a working-level seminar in the functions of Wall Street.

We are also working closely with a newly formed organization, The Council for Advancement of Secondary Education, a group mainly concerned with planning and supplying adequate instructional material in the economic field to some 28,650 high schools throughout the country.

ON THE daily working level, the Exchange is active in a number of directions. For example, we publish THE EXCHANGE Magazine monthly, a pocket-sized primer of investment facts and authoritative analyses of various phases of investment—and one of the most widely quoted of any national magazine. The leading article in the October issue, "How To Spot a Phony Broker," by John W. M. Rutenberg, a former Assistant Attorney General of the State of New York in charge of prosecuting securities frauds, was used by the major press associations, appeared in newspapers from coast to coast and was used on an NBC network news program.

Similar national attention was given to an article which warned against the pitfalls inherent in wild speculation in uranium stocks.

We are not always concerned with warning the public but such articles seemed particularly appropriate in view of the current intense interest in investment—an interest which some unscrupulous stock salesmen and outright swindlers are today trying to exploit.

In our national advertising we are using one-minute interviews with people in all walks of life who briefly give their views on stocks and investment.

This constant educational work, it goes without saying, is basic. At the same time, we came to realize that if we were to make the maximum effective contribution toward increasing share ownership, we would have to go a step

TS PS GO ADL FDS AH N SH CUD
45¼ 11⅞ 56⅝ 2s26¼ 50⅞ 68⅝ 49⅛ 2s21⅝

further—in other words, not only tell people about share ownership but make it easy for them to become share owners.

Millions of people have been able to buy their homes, their automobiles, their radios and television sets, scores of other consumer goods, only because they could pay for them out of income. Why not extend that concept to investments? Why not devise a way for the investor to buy his share of American business out of income and without the use of credit?

This idea was presented to the public only last January as the Monthly Investment Plan, which I consider one of the most significant contributions to personal financial planning in recent decades.

The Plan was worked out to satisfy the needs of the investor of moderate means, the person who does *not* have a large reservoir of idle cash but who is in a position to invest periodically out of income. We had in mind the man who already owns ample insurance, who has provided for emergencies with a savings account or U. S. Government bonds, and who is ready for the next step in taking care of his own and his family's financial future.

HERE's how it works:

Get in touch with a member firm of the Exchange—there are some 622 of them all over the country. Perhaps you have already decided which particular company you're interested in; if not, the firm's research facilities and counsel are yours for the asking.

After you have chosen a stock, let your broker know how much money you want to invest. You have a tremendous range of choice, from $40 each month or each quarter to $999 each month or quarter.

Let's say you want to invest $50 a month in the stock of XYZ Corporation. Each month your investment will buy $50 worth (less commission) of XYZ no matter what the price is. If the price goes down, you can buy more shares; if it goes up, you can buy fewer shares.

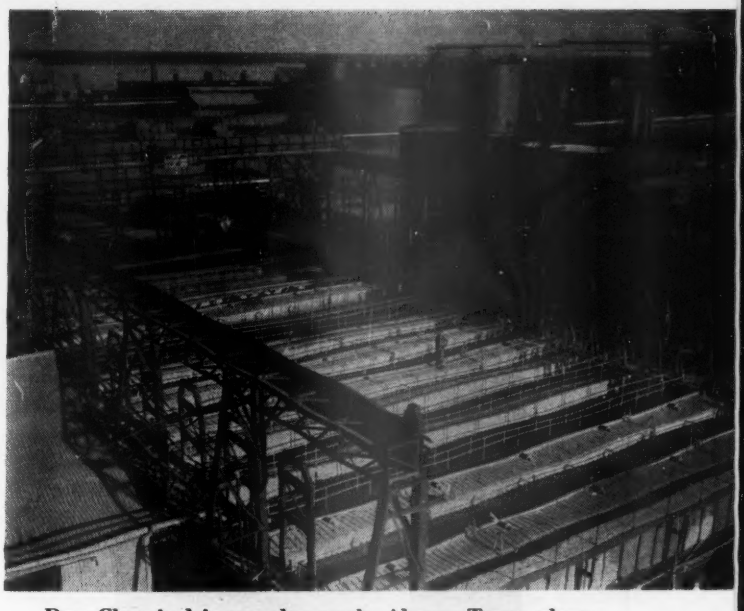
There are no extra charges involved—you pay only the normal commission rates. The Plan is non-contractual so that you can drop out whenever you please without penalty. There is no credit involved; you buy only what you actually pay for.

All your transactions may be carried out by mail. You don't even have to worry about dividends paid on your stocks; you will receive them from your broker or they will be automatically reinvested, whichever you prefer. And, of course, you can sell your stock whenever you wish, again paying only the normal commission.

ONE of the most attractive features of MIP—certainly to the novice investor—is that it makes use of an investment technique widely used by institutional investors such as pension funds and educational endowments. The technique is known as dollar-cost averaging. The MIP buyer is interested primarily in investment, not in day-to-day trading nor in current fluctuations in the price of the security being purchased. Declines in the price of a stock may actually be to his benefit—provided the long-range price trend is upward and periodic purchases are continued.

Since the Monthly Investment Plan was inaugurated in late January of this year, more than 25,000 Plans have been put into effect and new Plans are being written at an average rate of about 100 a day.

One of the most gratifying phases of MIP to me is the type of security being purchased. The accent is largely on growth. People seem to be most interested in those companies which promise to grow with the nation, companies which are constantly pioneering new products and processes, more efficient service. The following ten issues are the most popular MIP stocks:



**Dow Chemical is popular stock. Above: Texas plant.**

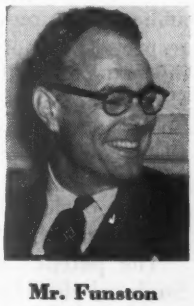
| | |
|---|---|
| Radio Corporation of America | Standard Oil of New Jersey |
| Dow Chemical | Tri-Continental Corporation |
| General Motors | Du Pont |
| General Electric | Long Island Lighting |
| American Telephone & Telegraph | International Nickel |

As a professional engineer, do any of these companies intrigue you?

The Monthly Investment Plan is not a get-rich-quick scheme nor an investment panacea. It does offer a workable program to investors of moderate means who want to create income-producing capital, who want to own their share of American business. Certainly professional engineers—the men whose technical and managerial skills contribute so much to the successful functioning of our plants and machinery—might well consider acquiring an ownership interest, through personal investment, in the industrial wealth which they create and maintain.—***End.***

---

***About the author . . .***



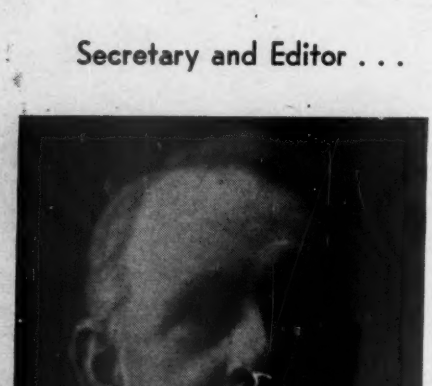
**Mr. Funston**

G. Keith Funston has been president of the New York Stock Exchange since September, 1951. Prior to this he had been president of Trinity College, Hartford, Conn., from which he had graduated with honors in 1932. Mr. Funston also holds a Master of Business Administration degree from the Harvard Graduate School of Business Administration. He worked his own way through both institutions.

He has also been associated with the American Radiator and Standard Sanitary Corporation and Sylvania Electric Products, Inc. He served as special assistant to Donald M. Nelson, chairman of the War Production Board from 1941 to March, 1944. Later, 1944-45, on leave from the Trinity presidency, he served as a Lt. Commander in the U.S. Navy.

ACD MCS PY PA LN KSY LK VNT LW LN TV
92¾ 24½ 61⅝ 4S17⅝ 71 32 45 17¼ 17 71¼

Secretary and Editor . . .



Shown above is Dr. H. W. Dickinson, M. I. Mech. E., for 30 years honorary secretary of the Newcomen Society and editor of 25 volumes of the *Transactions*.

# The Newcomen Society—Study in History

By

J. FOSTER PETREE

*Director and Former Editor of the London Week*
*Technical Journal, "Engineering," and Form*
*President, Newcomen Society of Great Brit*

**You've Heard of the Newcomen Socie of Great Britain (and America) bu What Do You Know About This Organ ization Founded to Study the History o Engineering and Technology? Here I the Story.**

WHAT is the Newcomen Society? And who was Newcomen? The questions are frequently asked—more often, perhaps, in the United States than in Britain, because the operations of the American Newcomen Society are on a more extensive scale than those of the parent Society to which it is affiliated. Moreover the two Societies differ in certain respects, but not fundamentally. They are administered independently, though a number of members of the United States Society belong also to the United Kingdom Society. Some are members of its Council, and the election of new members to the American Society is always formally ratified by resolution of that Council. It is, indeed, a curious relationship that has grown up between the two organizations, but it works.

The parent Society—the Newcomen Society for the Study of the History of Engineering and Technology—was founded in 1920, the prime mover being a Birmingham consulting engineer named Arthur Titley, who was deeply interested in the history and development of steam engines and iron-working machinery of all kinds. In the previous year, there had been a great gathering of prominent engineers in Birmingham on the occasion of the centenary of the death of James Watt. Titley saw his opportunity and suggested to some of them that a society should be formed to study the history of engineering and technology, and to put upon a firm basis of ascertain fact what had been largely a matter of legend.

The idea was welcomed, a meeting was called i London, and a society was formed; but it had no name The first instinct was to associate it with the name o James Watt, but there were already various organizations bearing his name, and anyway, the steam engine was well established before Watt ever saw one. John Smeaton Smeaton was one of the greatest of the pioneer engineers but even he was a developer rather than an originator So back in history the committee went until they reached Thomas Newcomen, who constructed, in 1712, the firs piston steam engine. *(See cut.)* Little else was known about him, but that fact was well authenticated. He, more than any other man, was entitled to be regarded as "the Father of the Steam Engine"; and, moreover, it was i repairing at Glasgow University (where it still exists) a model of Newcomen's steam engine that James Watt was led to make his own great invention of the separate con denser.

So "The Newcomen Society" it became, with Titley as first president and, as secretary, Henry Winram Dickin son, at that time Keeper of the Mechanical Engineering Division of the Science Museum in London, where the Society has its headquarters. The membership was small but individually enthusiastic and knowledgeable, abl and eager to contribute papers as notable for their tech

nical and scientific quality as for their historical accuracy.

The first volume of the printed "Transactions," for the session 1920-21, contained papers on the literature of historical engineering prior to 1640, the Sussex iron industry, the locomotives which Richard Trevithick (1771-1833) exhibited in London, the invention of roller drawing in cotton spinning, and a presidential address by Titley which admirably expressed the philosophy of the Society. The standard of interest and erudition then set has been fully maintained, and the Society is now recognized as the premier historical body of its kind in the world.

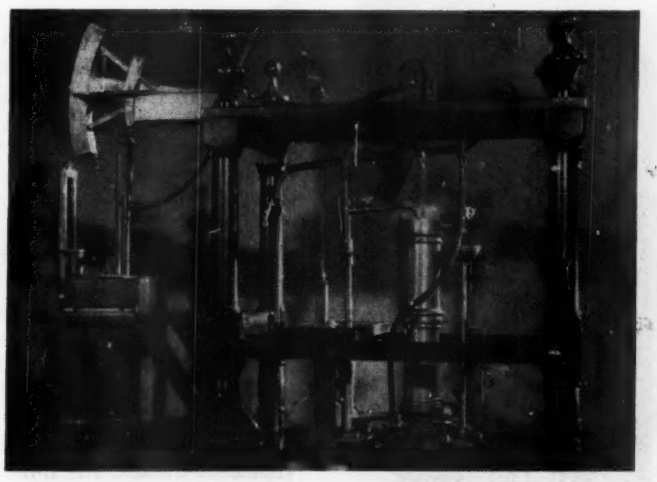
Unfortunately, it came too late into the field to discover much that was new about Newcomen himself. He was born in 1663 at Dartmouth, in the English county of Devon, where he practised the trade of an ironmonger. The house in which he lived was still standing until 1864. He died in London in 1729 and was buried in the cemetery at Bunhill Fields in a vault of which the location is not now known.

His first engine was constructed in 1712 and was erected near the town of Dudley in the English county of Worcestershire. A number of others were constructed during his lifetime. There is a memorial to him at Dartmouth, consisting of a bronze plate illustrating a Newcomen engine mounted on a rough-hewn block of granite. A copy was placed in 1953 at the headquarters of the American Newcomen Society at West Chester, Pennsylvania.

FROM the outset, the Newcomen Society attracted the attention of United States engineers who were interested in the history of technology, and a number of them joined it. During World War II, however, great difficulty was found in maintaining effective contact with them, and eventually it was found necessary to set up a separate administration for the United States and Canada. At the same time, the scope of the American Society was widened to embrace other branches of industrial history, current as well as past, whereas the United Kingdom Society's researches are of a more antiquarian nature, though always predominantly technical and scientific. Many of the most prominent men in United States industry, commerce and professional life are members of one society or the other, and some, as has been stated, belong to both.

Whatever may be their activities in public or private life, they have here a common ground on which to meet; for history, whether technological or not, is the common possession of the human race. The joint efforts of the two Newcomen Societies are doing much to preserve for posterity a knowledge of the work of the technical pioneers who laid the foundations of the industrial greatness of both nations.—***End.***

## Back in 1712 Thomas Newcomen, the Father of the Steam Engine, Turned Out His First Model



Above is a model of Newcomen's first steam engine. A unique society of men interested in the history of engineers and engineering now bears his name. An American Newcomen Society is now active with headquarters at West Chester, Pennsylvania.

*A Society Within a Society . . .*

# Why Bother With Ethics?

By SOL M. ISAAC

*Partner, Law Offices of Isaac and Postlewaite, Columbus, Ohio*

*"Completely free from prejudice as to class or race, laboring for the ultimate good of society at large as he envisages it, above passion, secure in the possession of special knowledge which the world needs and hence independent of the whims of individuals and groups, the true professional man is and should be a figure apart, wherever he may be placed. It is his duty to merit that confidence which alone will permit him to operate with effectiveness."*

THIS statement was made some years ago by a very distinguished scientist, Dr. Vannevar Bush. It is applicable alike to the engineering profession, to the legal profession, and to our colleagues in various other fields. It is an interesting fact today that despite the sharp criticisms frequently levelled at professional classes, individually and collectively, various skilled groups are increasingly and insistently attempting to assume the label of a profession. It was not so long ago that insurance salesmen began calling themselves Life Underwriters and began to acquire the aspects of a profession. Consider the activities of the accountants and the realtors. Lately, a book was published on ethics for the businessman. Will we see the day when a man or woman will become a professional merchandiser or a professional corporate manager? Schools such as Harvard's School of Business Administration could lead to that end, if they have not already done so.

**The author says that the effectiveness of professional groups in fulfilling their traditional roles is one of the chief measures of the strength and durability of civilization. When engineers refuse to plan and construct the previously impossible, then our civilization is doomed.**

Certainly I intend no criticism of any group which aspires to professional status. Nor am I, for my fellow lawyers or for the engineers or any other professional group, zealous to keep professional ranks restricted to the select few. But it is necessary to issue a general warning. A skilled group does not become a profession merely by assuming that label. Nor does a person acquire professional status by the mere acquisition of certain specialized knowledge and his name in gold-leaf on a glass door. Neither extensive education nor a licensing procedure necessarily create a profession, though these would seem to be prerequisites. The proficiency inherent in professional attainment connotes a degree of dedication, as Dr. Bush has said. And that dedication must be acknowledged generally both by the professional group and by the public at large.

No one should know these things better than a lawyer. Law is not only one of the oldest of the organized and recognized professions, but the legal profession can lay claim to certain pre-eminence among its fellow professions. It is probably the one most consistently criticized and badgered. It is also, and perhaps as a result, the profession most constantly and publicly, concerned with its own ethical principles and the discipline of its ranks. I know of no other group which has to such a degree organized committees to discipline its members, even to the extent of depriving certain malefactors of the right to remain members of the profession. This development is not on the wane, but is increasing throughout the country. It stems from a conviction that ethical conduct on the part of all lawyers is necessary both for the preservation of the profession and the democratic way of life. Let it not be assumed that many lawyers require or receive disciplinary action. The numbers of malefactors are remarkably small. But the Bar has realized for a long time that one delinquent lawyer can degrade the entire Bar out of all proportion. We are determined to do all that we can to prevent this.

Yes, the legal profession spends much time and talent on the quality of professional status. It is an elusive search, even for those trained to define and delimit the laws of society as a whole. But out of the experience of lawyers have come certain principles, applicable, I think, to all true professions.

It is almost impossible to draft a simple description of the professional class. Many learned men throughout the ages have attempted to define the aspirations and the proper place of these groups in society, but the efforts

usually have resulted in platitudes and cliches of little real significance.

Recently a distinguished lawyer in the introduction of his new work on Legal Ethics tackled the problem again, entitling the chapter "Noblesse Oblige." These words invoke thoughts of Lord Chesterfield and his concern with the responsibilities of a gentleman. They remind one of the obligations of a military officer to his men. It is a quality one never mentions for fear of sounding pompous. It is the reply to Cain's question—"Am I my brother's keeper?"

Without experience there are difficulties in your ability to appreciate the application of this to the practice of your chosen profession. There are some things, however, which initially you must accept on faith. You should give some weight to the conclusions of your older colleagues. While they have left many questions unanswered, they have contributed to the creation of a mighty nation.

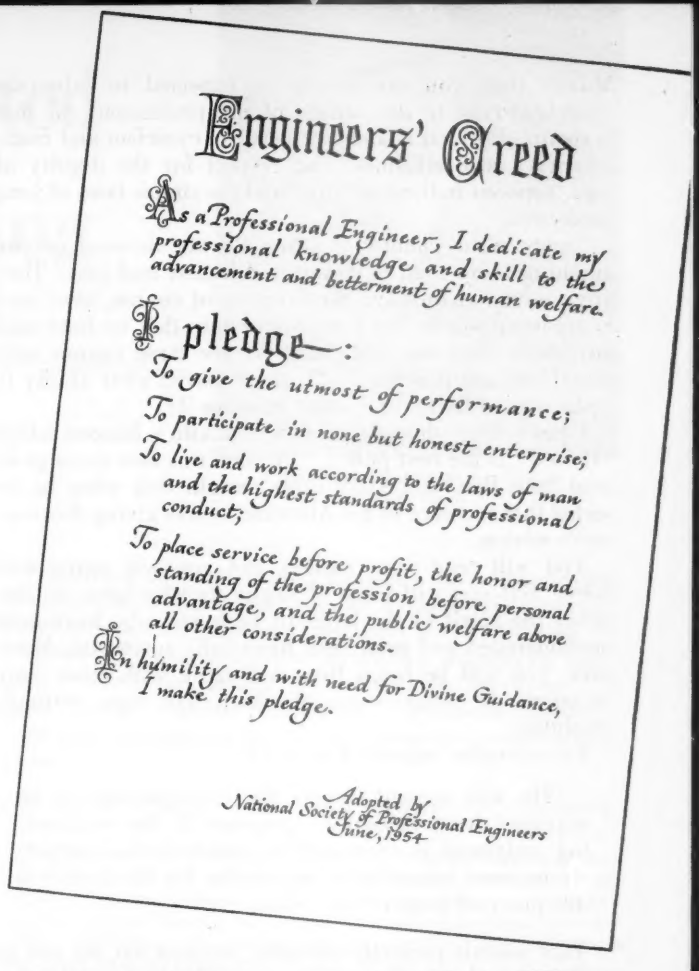
THE moral principles which underlie any way of life are generally, in the first instance, accepted by most members of a society on faith. The faith of any individual member is measured by his adherence to these moral principles. The durability of the principles rests upon the number of adherents and upon repeated demonstrations of their value. Few individuals are so moral as to make a noticeable impact upon their age. It is rather the accumulation of individual experiences which does somehow support or, as the case may be, gradually changes the form of the basic moral law.

A profession is a society within a society. For example, every culture has a group which corresponds to our legal profession, but the lawyers of any particular society may have different ethical concepts from the lawyers of another. I am sure that the code of ethics, if any, of Soviet lawyers is different from ours. Indeed, our own legal code of ethics has changed over the years, and is changing now, so that the lawyers of 1854 would not know the practice of law today and we would be strangers in the legal profession of tomorrow. Every such professional group is set apart from the rest of its community by reason of its specialized mission. But the effectiveness of these groups in fulfilling their traditional roles is one of the chief measures of the strength and durability of the particular civilization. When lawyers refuse to defend the defenseless, when doctors refuse to heal the sick, when ministers refuse to preach to the godless, when teachers refuse to teach the ignorant, when engineers refuse to plan and construct the previously impossible, then our civilization is doomed.

To increase the complexities, it must be stated that while the ethical code of each profession may be different from the rest of society, it does not stray far. The conduct of a professional person is affected by the general aims and basic desires of the entire community, and conversely, those aims and desires are directed somewhat by the character of the profession itself. If the public demands honest lawyers, doctors, ministers, educators or engineers, they will have them. But each profession must aid the public by self-analysis and self-determination to produce the best possible personnel for the best possible results.

These things are not, of course, new. Engineers did not operate in a moral vacuum prior to the adoption of canons of ethics in 1946. The engineers of today are not the first scientists to contribute to the durability of our society. In contributing greatly to every field of human endeavor, they merely follow the tradition established by their predecessors.

On the other hand I have a strong conviction that all


Engineers' Creed
As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare.
I pledge:
To give the utmost of performance;
To participate in none but honest enterprise;
To live and work according to the laws of man and the highest standards of professional conduct;
To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.
In humility and with need for Divine Guidance, I make this pledge.
Adopted by National Society of Professional Engineers June, 1954

**The Engineers' Creed, recently adopted by the NSPE, sets forth basic concepts of professionalism. The author says that a profession is a society within a society.**

professions today are not less concerned with their traditional roles than those who have gone before. I do believe that far from witnessing the crack-up of our society, we are, in all probability, at the threshhold of a new and more promising era. If that is true, you may be absolutely certain that the professionals of today are the architects of that future. It is on them that the people place their hope. But like architects, we professionals must build a house to suit the occupants. We may suggest improvements. We may even on occasion insist on certain elements. But we cannot be so progressive that our plans will not be purchased. On the other hand, we must never underestimate the basic desire of our clients, the general public, for a future built on the firm foundations of competency and honesty. We should not be misled by the public's inability to express this basic desire. It is our job to foresee it.

Why bother with ethics? Have I, like so many of my far more learned colleagues, fallen into the trap of mouthing elaborate principles which are of little value to the average young professional man or woman? This would be true if you assume that in order to fulfill your destiny as engineers you must not only be rigidly moral but also prominently effective. Neither of these is so, in my opinion.

THE morality which you should follow is not basically different from the remarkably simple Judaic-Christian code of our society. Your canons of ethics did not establish a new ethical concept. If you still require proof of the validity of the Ten Commandments or the Sermon on the

Mount, then you can hardly be expected to subscribe wholeheartedly to the canons of the profession. All that is required of you is a choice between cynicism and faith, between crass selfishness and respect for the dignity of man, between individual whim and the simple laws of your profession.

Surely, your canons of ethics do not demand of you anything more than is decent and honest and just. They are a model of brevity. We lawyers, of course, have used many more words, but I am not certain that we have said any more. But the real point is: are these canons only moral and not practical? Do they restrict your ability to make a good living or do they enhance it?

I have often thought of Ben Franklin's famous adage "Honesty is the best policy." No one was ever more practical than Ben, and I am quite certain that when he inserted that sentence in his Almanac he was giving down-to-earth advice.

You will read your canons and you will agree with them. But you will learn of engineers who have violated either the spirit or the letter or both and who have gone uncondemned and even been financially successful. Moreover, you will be faced time and again with close, hard decisions of ethics, some of which will seem virtually insoluble.

For example, examine Canon 12:

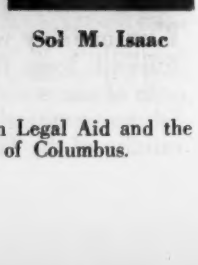
> "He will present clearly the consequences to be expected from deviations proposed if his engineering judgment is overruled by non-technical authority in cases where he is responsible for the technical adequacy of engineering work."

That sounds perfectly obvious, but how far do you go to "present clearly the consequences" in the face of losing a job which someone else may take. How long will your judgment withstand the onslaught of another's contrary opinion if your employment is at stake? When are the consequences insignificant and when will you play the odds?

The answer to these questions and all of the others you could raise from these canons will be found only within yourself and your experience. But it does seem logical that the engineers who initially subscribed to these canons did so not only because they felt the moral force behind them but also because they were thoroughly convinced that engineers, collectively and individually, would be best served by adherence to them. My only advice can be that the younger men test any doubts about the economic value of these canons by consulting with the more mature engineers. I should be surprised if the respected and successful men in your profession did not wholeheartedly endorse these canons of ethics.

---

## *About the Author . . .*



Sol M. Isaac

Sol M. Isaac is a graduate of both Yale University and the Harvard University Law School. He is a practicing attorney in the Columbus, Ohio, firm of Isaac and Postlewaite.

Mr. Isaac is president of the Family Service Association of America and is also a past president of both the Columbus Bar Association and that city's Family and Children's Bureau. He is now a member of the board of directors of the latter organization. In addition, he is serving on the boards of the Ohio Citizens Council for Health and Welfare, the Jewish Family Service, and on the American Bar Association's Committee on Legal Aid and the Budget Committee of the Community Chest of Columbus.

Our civilization moves at all levels of our complex society. To build and construct upon sound and honest principles the most modest of structures is just as fundamentally important as to erect the mightiest bridge or the tallest spire. I am no engineer. Indeed, I can think of no profession in which I stand of greater awe because I am so incompetent in the field. But I do not think you will deny that the great developments in engineering, as in law or medicine, grow from competency and industry exerted in every task, however humble. It is all one fabric that we weave. There are examples every day of the impact of relatively obscure individuals on the whole society.

It is plain, if I am right, that all of us can contribute to the durability of our Society if we choose to do so. It is equally true that if we do not choose to do so, we shall contribute to the weakening of our moral fibre. And, to complete the circle of my argument, the value of our contribution will depend on our faith and adherence to our code. A career born solely from a motive of personal gain or seriously tempered by considerations of personal comforts and security, will never measure up to one grounded in a genuine interest in society and its future stability.

Finally, I should like to consider the organized professions. It would seem elementary that individuals are not as effective in producing a better climate within which to work and a broad advancement of a profession than can an organized group. All of the great professions move forward in the wake of their organizations. This is not to say that every member of any particular profession necessarily endorses the policies and programs of his group, but he has, within practical limits, a forum to present his views and to learn from associations with his fellow practitioners.

Probably the most beneficial effort of any organized profession is to develop proper and better public relations. In this area the contributions of the profession as a whole can be brought to the attention of the community. Conversely the public has a place to go with complaints and inquiries which can either be explored or satisfied. One important new development is the interrelation between professions. Through our several organizations the lawyers have made good progress in working out mutual problems with the doctors, the accountants, the insurance men, the realtors and the bankers. We don't always agree with each other, but we have organized a method of compromise and discussion. The net result is better relations between us and more productive work for our mutual clients.

You will have to determine for yourselves how much of your time and abilities you will devote to your professional organization. People differ in the degree of dedication and it is not to be expected that all will contribute equally. But I urge consideration of the fact that the time spent in professional society work will be of value not only to your colleagues, but most especially to yourself. You will broaden your own horizon. But above all the respect and admiration which one receives from his fellow professionals is the highest tribute a person can obtain.

All of us are very fortunate people. We are the beneficiaries of ages of noble aspirations. No engineers were ever before so well educated, so surrounded by material comforts and a wealth of valuable tools of the profession. Your immediate predecessors have not failed to prepare you thoroughly to be leaders. No other society ever required or appreciated the contributions which dedicated engineers can make for peace and prosperity, for the fulfillment of the democratic dream. The world does not owe you a living. I firmly believe that you owe the world a life.—***End.***

# Packed Agenda Acted Upon at Fall Meeting

## Omaha Was the Scene of Vigorous Action on Dozens of Important Subjects. Here Is the Report.

President Clarence T. Shoch, presiding.

Last month the members of the National Board of Directors, representing NSPE's State Societies, journeyed to Omaha for their Fall Meeting. For two days, as guests of the Nebraska SPE, the Directors dealt with an agenda filled with items of interest and concern to the engineering profession.

Following an inspirational opening message by President Clarence T. Shoch, and a review of Headquarters Staff activities by Executive Director Paul H. Robbins, National Committee chairmen were called upon to present their reports for the Board's consideration.

Below are printed condensations of many of the Committee reports given to the Board as well as actions taken by the Board.

*Chapter Activities*—D. C. Peters, P. E., reporting.

A comprehensive booklet is now being printed which will serve as a Chapter President's Guide. The publication is scheduled for fall release. Also, now in the hands of the printer, is the first of a series of monographs, each of which will deal with the work of a chapter committee. The first monograph is devoted to the problems facing a Chapter Young Engineers Committee and contains much information to guide the Committee in its work. Chairman Peters reviewed the Committee's work in the Ladies Auxiliary field and recommended that Auxiliary Chapter records be established at the National office, and that Chapter officers be given pertinent data released from time to time as well as limited mailing help.

*Board Action:* That Headquarters obtain a listing of all existing Auxiliaries and provide limited mailing assistance to them.

*Constitution and Bylaws*—W. Earl Christian, P. E., reporting.

The Committee recommended that the Constitution and Bylaws be amended to provide that those members now designated as Engineer-in-Training members, shall, henceforth, be known as Junior Members, and that the Bylaws be amended to reflect that dues for membership-at-large are ten dollars per year.

*Board Action:* Approved Committee recommendations for changes in the Constitution to designate Engineer-in-Training members as Junior Members while referring the question to the membership for voting. Approved Committee recommendations for changes in the Bylaws to read "Junior" member rather than "Engineer-in-Training." Approved changes in the Bylaws concerning membership-at-large dues.

*Engineer in Industry*—Robert A. Blackburn, P. E., reporting.

The Engineer in Industry Committee's primary activity is centered around the task of preparing a publication, tentatively titled, "The Professional Status of the Engineer in Industry." The first draft of this publication has been prepared and reviewed by Committee members. It is anticipated that a release date will be in the early part of 1955.

*Board Action:* Report received.

*Ethical Practices*—B. A. Backlund, P. E., reporting.

It is requested that the Board of Directors grant authority to the Ethical Practices Committee to contact State Societies and issue educational bulletins, when appropriate, in connection with a program of examination and study of the following items:

1. Professional advertising practices, including the dispensation of "Free Services" and classified telephone book listings.
2. Ethical relationships between engineering and other professions.
3. Competitive bidding.
4. Follow-through on the adoption of the Engineers' Creed.

*Board Action:* Report received.

*Interprofessional Relations*—R. A. Freese, P. E., reporting.

The 1954-55 Interprofessional Relations Committee efforts to date have been expended on:

1. An Interprofessional Code of Practice between Engineers and Architects.
2. A Standard Form of Agreement between Architects and Engineers.

**The Omaha meeting was marked by many social events. Here at the banquet, Nebraska Governor Robert B. Crosby, right, commissions Under Secretary of Commerce Walter Williams an admiral in the Nebraska Navy. At the left is Toastmaster Edward T. Foster of the Nebraska SPE.**

3. An item referred by the Executive Committee in connection with the procedure in employing the services of Commercial Testing Laboratories in the engineering construction field.

On item 3, the Committee requests Board approval of the following policy statement:

"For the services of a Commercial Testing Laboratory on an engineering construction project, the selection, employment, and payment shall be made by the owner or by the engineer as his agent."

The reasoning of this statement is that the Commercial Testing Laboratory has a prime responsibility to the owner in maintaining the engineer's specifications by means of testing equipment and integral parts and by controlling the ingredients which are required in the construction project.

***Board Action:*** **Policy statement referred to above, approved.**

***Legislative*—Virgil E. Gunlock, P. E., reporting.**

Several legislative items of concern to NSPE were not concluded when the 84th Congress adjourned on August 20, 1954. It is anticipated that these legislative items, such as Specialized Personnel and Military Service, Taft-Hartley Amendments and The Kearns Bill, Tax Legislation and Classification and Salaries of Federally-Employed Engineers, will be reintroduced when Congress meets in January, 1955.

Recommended for Action of the Board of Directors: It is recommended that the Board of Directors take action on the social security coverage of self-employed P.E.'s; three alternatives are outlined in detail below.

The following possible courses seem to be open:

*a.* In view of the Administration's adamant position favoring the inclusion of *all* self-employed professionals, accept the action as inevitable and make no attempt to reverse or change the situation. This would constitute an acceptance of Senator George's forecast on the floor of the Senate—"We will take them (doctors, lawyers, dentists, etc.) in, though, in the future. We cannot help it now. We have reached out and have taken in men who occupy an independent status. We have broken down every barrier."

*b.* If we accept coverage, as indicated above, consideration may be given to making the best of the situation. That is to say, the new law lowers the age at which the earning limitation ceases to apply from 75 to 72 and raises the allowable earnings without loss of retirement benefits from $900 to $1,200 per year. The main argument of the professions, including NSPE, against mandatory coverage was that the professionally self-employed man does not retire usually at the age of 65 and thus his continued income will deprive him of the retirement benefits. Bearing in mind that the allowable earnings rate has gone from $15.00 per month to $1,200 per year in less than twenty years, a supplementary policy could be to work toward the complete elimination of the earnings test (which would probably cost the participants an additional one per cent per year) and an interim policy of lowering the age at which the test does not apply as close as possible to the age of 65.

*c.* Self-employed farmers have also been brought into the system over vigorous objections by some farm groups. Statements on the floor of Congress at the time, and subsequent developments, indicate that there may be a definite drive next year to amend the law again to prevent the farmers' coverage ever becoming effective. It should be noted that the coverage for the new groups, including self-employed professional engineers, becomes effective January 1, 1955, but the first return and payment of social security taxes will not occur until 1956 when 1955 income tax returns are filed.

Accordingly, it is possible that if this attempt occurs we could seek to become a part of it and, in cooperation with the farm groups, seek to have self-employed P.E.'s also removed from coverage. The possible collaboration is mentioned because of the practical realization that an attempt by the self-employed P.E.'s alone would not have the same political appeal as one supported by the politically powerful farm organizations.

***Board Action:*** **Approved that the matter of social security be placed on the agenda for discussion at the Spring Meeting of NSPE, following further investigation into the subject and the possible benefits to be derived from social security coverage by self-employed professional engineers.**

***Membership*—A. H. Kidder, P. E., reporting.**

The Membership Committee has given considerable thought to the possibility of refunding to Chapters a portion of the income derived from new members.

Furthermore, this Committee has been evaluating plans and procedures that are currently being used with marked success in some of the member state societies. The question of personal solicitation of membership, solicitation by correspondence, presentation of certificates to new members, delinquencies and the feasibility of a national membership campaign have also been under study. A national membership campaign is now underway and it is believed that a program of this sort will do much to encourage a competitive membership spirit among the states.

Recommended for Board Action, the following motion:

"To assist chapters in their membership promotional work, the National Society will remit within sixty days after the end of each calendar year, $5.00 for each additional current member of that State Society as compared with the number of current members on the national rolls as of December 31 of the previous year. This provision will be available only to those state societies who indicate in writing to the National Society that where applicable this money will be apportioned to the chapters of the State Society on the same basis."

***Board Action:*** **Approved that the matter be referred back to the Membership Committee for clarification of the detailed mechanics and a report at the NSPE Spring Meeting.**

***National Defense*—Frederick Kraissl, Jr., P. E., reporting.**

The National Defense program has been initiated and started in operation as indicated in the detailed program now under consideration by this committee.

In line with the proposed approach, a meeting was held with Mr. Harold L. Aitken of the FCDA, and many verbal recommendations welcomed for consideration. We were invited to submit recommendations for the better organization of the Plant Protection Program, and it is planned that this will be accomplished in the very near future.

A meeting was held with Colonel F. H. Kohloss, Executive Director of the Society of American Military Engineers. It is believed that a meeting of minds has been obtained and that recommendations will be forthcoming for the consideration of our National Defense Committee which will be of importance to our National defense.

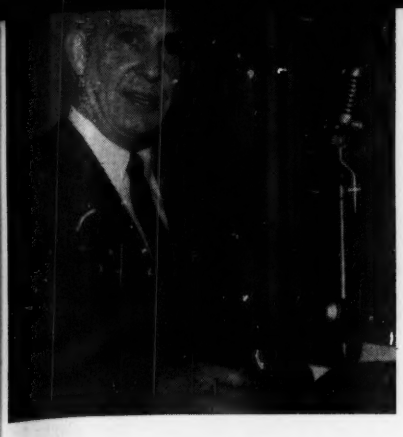
It is proposed that all finally approved recommendatioons will be in a form for appropriate consideration by our officers and National Directors at the Annual Meeting.

***Board Action:*** **Report received.**

***Publications Committee*—Vincent F. Waters, P. E., reporting.**

The firm of Austin LeStrange Company, Inc., was retained in mid-1954 as advertising sales representatives for the AMERICAN ENGINEER. Because it requires several months of study of a magazine, its potential, prospective advertisers, and potential market for the prospective advertisers, and many other contributing factors for selling advertising, a progress report at this time would be premature.

**Hard at work. Directors from all the State Societies tackled a long agenda.**



**Featured speaker Walter Williams, Under Secretary of Commerce, tells the engineers how important they are to the Nation's economy and defense.**

However, the firm of Austin LeStrange Company is headed by Mr. LeStrange who is long experienced in the sale of advertising, and he has capable salesmen in his employ. As pointed out in the annual report of the Publications Committee, the impact of this new representation should be felt strongly in 1956, with a substantial gain in advertising revenue to show up in 1955.

***Board Action:*** **Report received.**

***Public Relations including Engineers' Week*—G. W. McCullough, P. E., and Anatole R. Gruehr, P. E., reporting.**

### Public Relations

In addition to planning and developing techniques normally utilized by this Committee for reaching the public, a public relations kit has been prepared and will be mailed to PR Chairmen late this fall. Work has begun on publicity articles and releases for the fourth executive research survey report. This Committee, in conjunction with others, has under consideration; (a) awarding a prize to a journalist for an article making the most outstanding contribution to public understanding and appreciation of the profession of engineering; (b) the sponsoring of a nation-wide mathematics competition to select the 10 most outstanding high school seniors in the subject.

### Engineers' Week

In following the recommendations made by the National Engineers' Week Committee in June, 1954, your Committee submits the following progress report:

1. Preliminary steps are being taken by the NSPE staff in Washington to secure a message from the President of the United States.

2. A letter has been prepared soliciting support for National Engineers' Week by daily newspapers, magazines, and TV and radio broadcasting stations. Copies of this letter will also be sent to major industrial organizations and to engineering colleges.

The same group of engineers of national renown, who have acted as sponsors of this letter in 1954, have been asked to sponsor the 1955 letter.

3. Direct requests will be sent to major industrial companies, which sponsor national TV and radio broadcasts, to give timely recognition to National Engineers' Week on their programs. Similar requests will be made to various TV and radio programs.

The National Directors and state presidents are requested to advise the Committee regarding programs on which it would be desirable to secure recognition for Engineers' Week, indicating:

A. The name and address of the sponsor for one sponsor program; also the name of the individual to be contacted (if available).

B. The name and address of the individual or individuals conducting the program.

C. The name and address of the originating network; also the name of the individual to be contacted (if available).

4. Material for a more complete kit has been assembled and is being processed. It is hoped that the kit will be ready for distribution about the time of this meeting.

TV and radio programs, based on local activities, in which the community has direct interest, are apt to obtain the largest and most attentive audience. The kit contains samples of such radio and TV programs, largely drawn from the successful operations in 1954. It is hoped that the State and Chapter Committees will adapt these to their local situations.

5. Attempts are being made to adapt for use during Engineers' Week TV and radio shorts on engineering prepared by others. Special films are also under consideration.

6. As an added feature, letters will be sent to State and Chapter Presidents with suggestions for timely action. The first letter (on timely organization of a speakers' bureau) was mailed early in September. Another should go out in October.

***Board Action:*** **Reports received.**

***Registration*—Orland C. Mayer, P. E., reporting.**

The primary activity of this committee has been devoted to the preparation of a questionnaire which was designed for the purpose of obtaining opinions of the membership on certain features of the registration laws.

On September 15, 1954, the questionnaire was sent to the Board of Directors, State Presidents, State Secretaries, Chapter Presidents, Chapter Secretaries, Committee Chairmen, and Members of the Conference Board for Industry. An additional 5,000 copies were sent to a random sample of the membership on September 17, 1954. The total distribution of this questionnaire was approximately 6,000 copies.

The chairman hopes to have a tabulation of the preliminary results to present at the Spring meeting.

***Board Action:*** **Report received.**

***Unity*—C. A. Dunn, P. E., reporting.**

Recommended for Board Action:

1. We move that the EJC Liaison Committee be instructed to consider the desirability of an exchange of observers with EJC, and, if considered desirable, to propose such an exchange to the EJC members of the committee.

2. We move that the Education Committee be instructed to consider an investigation of the compensation of engineering educators, with a view toward recommending a definite program to the Board.

3. We move that the Registration Committee be instructed to study and report to this Board a joint program with the State Societies and NCSBEE for securing greater uniformity of registration laws in the several states, and greater interstate cooperation in the matter of reciprocal licensure.

4. We move that the Executive Director be instructed to send copies of pertinent parts of this report to each State Society and each local chapter pointing out, particularly, the desirability of seeking cooperation of other societies for Engineers' Week observance and offering cooperation in their areas on ECPD programs.

***Board Action:*** **Recommendations approved.**

***Young Engineers*—Harry G. Kennedy, P. E., reporting.**

The Young Engineers Committee is conducting a survey of each Member State Society, regarding the status, interest and participation of the young engineer in the various State Societies, by means of a questionnaire.

It is anticipated that this Committee will have a complete summary of the questionnaire and comments for presentation to the Board of Directors at the Spring Meeting in 1955.

***Board Action:*** **Report received.**

**More busy directors. President Clarence T. Shoch presided at the sessions.**

# Texas SPE Challenges Agency's Failure To Use Professional Engineers

The Texas Society of Professional Engineers has initiated a lawsuit to determine whether a political subdivision of the State may lawfully let a construction contract which is to be performed without professional engineering direction and for which plans and specifications were not prepared by P.E.'s.

The action is against the Fort Bend County Drainage District and was filed by the Registration Enforcement Committee, TSPE, of which J. B. Dannenbaum is chairman. An injunction is asked against the state agency and the contracting firm of Griffin & Dickson to prevent the execution of a $240,000 contract for drainage work.

The contract awarded to Griffin and Dickson embraces plans and specifications for proposed improvements, according to the complaint, in violation of the Texas engineering registration law which provides that it is unlawful for the state or any of its subdivisions to engage in the construction of any public work involving professional engineering where public health, public welfare or public safety is involved unless the plans and specifications and estimates have been prepared by a registered professional engineer, and the engineering construction work is to be executed under the direct supervision of a P.E.

It is alleged that the state agency did not comply with either of the law's requirements and, further, the contracts, plans and specifications were awarded without the seal of a registered P.E. being placed on the documents as required. Construction has been initiated, it is charged, without the supervision of a registered engineer, as required.

Chairman Dannenbaum said the suit has the backing of hundreds of professional engineers "who are on the alert to see that the law is complied with when public health, public welfare and public safety are involved." He indicated that it is the intention of TSPE to carry the case forward until a favorable decision is obtained, including an appeal to the State Supreme Court if necessary.

The case will be heard in the District Court of Fort Bend County, Texas, and the Society's position will be presented by the law firm of Fulbright, Crooker, Freeman, Bates & Jaworski of Houston.

## *Engineering Union Upheld in Change of Job Device*

By a 3 to 2 vote, the National Labor Relations Board has ruled that a union move during negotiations to seek employment for its members by other competing companies is not a violation of the Taft-Hartley Act.

The Seattle Profesional Engineering Employees Association, ESA, took the step during wage negotiations with Boeing Airplane Co., Seattle Division, as a means of putting pressure on the company. The union established a Manpower Availability Conference and invited airplane and other manufacturers to bid for the services of Boeing's engineers. Invitations were sent to approximately 2800 other employers. The effort was unsuccesful, but Boeing dismissed the engineer in charge of the employment agency, later rehiring him without admitting liability for the loss of salary.

An NLRB trial examiner found that the activity was not protected by the labor law and therefore the employer was free to discharge the employee because of his activity against the interests of the company. The maneuver was held to be indefensible in that it would cause substantial damage to the employer by virtue of bringing about a permanent severance of the employment as distinguished from a temporary loss of services through a strike.

The majority of the NLRB ruled, however, that the Manpower Availability Conference was a legitimate device to strengthen the union's hand in the negotiations. There was only a conditional threat that some of the employees would resign if the union's demands were not met, it was stated. The Board ordered that the fired employee be paid for loss of wages for the period he was not on the payroll.

A minority view contradicted the reasoning that the potential harm to the employer was related to the losses potentially inherent in a strike, arguing the company had a right to refuse to finance an injury to itself by continuing on the payroll an employee attempting to induce other employees to permanently sever their employment relationship. "Such activity is the antithesis of the purposes of the Act, which seeks to strengthen the bonds of cooperation between employer and employee. It is equally as disloyal, equally as injurious to the employer's business, and equally as disruptive of industrial peace and stability as the conduct which was condemned in (other cases)."

A secondary factor of interest in the case was the claim that the union attempt was based in part on a desire to combat the employer's participation in a "gentlemen's agreement" with other aircraft companies. Under this arrangement it was alleged that the 80-odd companies in the aircraft industry would not offer employment to any employees of other company members without the express permission of the other company. NSPE has taken a position against the use of "gentlemen's agreements" with respect to professional engineers.

# National Labor Relation's Board Holds Chief of Party Supervisor Under Labor Law

The National Labor Relations Board has ruled that a Chief of Party of a surveying crew is not an "employee" under the Taft-Hartley Act and is therefore not entitled to the protection of the law in alleging an unfair labor practice against his employer and a trade union for alleged coercive tactics regarding forced affiliation with the union.

The decision was rendered in the case of L. Stewart McCoy of Wauseon, Ohio, who had filed the charges on the claim that his employer, Terry and Wright, Inc., and the local union of the International Union of Operating Engineers had attempted to force him to join the union or lose his job. (See AMERICAN ENGINEER, June, 1954.)

The NLRB Field Examiner who considered the case found that McCoy, as Chief of Party, had full authority to hire or fire the rodmen and chainmen in his crew and did, in fact, exercise that authority. The section of the law upon which the case was based grants "employees" protection against union coercion, but the term "employee" is defined to exclude those who are deemed "supervisors." It was held that McCoy was covered by the definition of "supervisor" in

(*Continued on page 37*)

# FROM WASHINGTON

By
Milton F. Lunch,
*N.S.P.E.'s Legislative Analyst*

## THE GOVERNMENT RESEARCH PROGRAM . . . ALL IS NOT WELL

Government-sponsored research has become big business and accounts for a substantial portion of the budget compared to a relative pittance only a few years ago. For that reason, plus the increasing recognition that the success or failure of the over-all national research program is directly related to the defense of the Nation, more attention is being given the subject than ever before.

Some important criticisms have been offered from reputable official and non-official sources. Organs of public opinion (newspapers, magazines, commentators, etc.) are asking critical questions. Congressional sources are taking a hard look at the program and are finding some deficiencies.

According to a recent survey by the National Science Foundation, Federal agencies will obligate an estimated $1.99 billion for research and development activities for the fiscal year ending June 30, 1955. This is about 10 per cent less than the $2.23 billion obligated in the previous fiscal year. About 87 per cent of the amount is for the physical sciences and about 85 per cent is for research and development connected with national security. The Department of Defense is responsible for about 75 per cent of the funds.

Against this background, a House Subcommittee on Military Operations has warned that the military agencies have done an inept job of handling civilian scientists and that steps must be taken to make participation in their research and development programs more attractive to scientists by wiping out "irritations and frustrations." If corrective action is not taken, the Congressional group said, it may be necessary to put the work into civilian hands, as was done during World War II. The committee heard the testimony of many eminent scientists and engineers who pinpointed specific instances of unsatisfactory relationships. The agencies were told to study the testimony and seek corrective action of the causes of dissatisfaction, such as:

Restrictions on the exchange of information.
Inadequate salaries.
Needless military inspections.
Rigid patterns of daily working hours.
Discriminatory personal privileges as between military and civilian scientific and technical personnel.

### More Basic Research Needed

An important finding of the subcommittee was that "there is a serious need" for the Department of Defense to support a systematic program of basic research in the physical sciences. "Such a program might supply the basic knowledge upon which future weapons and weapons systems could be brought into being," it was observed. Emphasis on the point of the relative lack of attention to basic research in the government program is contained in the Science Foundation survey. This shows that obligations for basic research in the sciences will be approximately $131 million for fiscal 1955, representing a slight gain over $120 million for the previous year; yet still a relatively insignificant part of the almost $2 billion total.

Last March, President Eisenhower issued an Executive Order for a survey of the total national research and development program, including private expenditures as well as governmental. In his order, the President also called attention to the imbalance of the applied and basic research aspects and stated: "I believe strongly that this Nation must extend its support of research in basic science."

The National Science Foundation has now announced plans for the national survey which will be conducted by the Bureau of Labor Statistics, U. S. Department of Labor. Questionnaires will be sent

(Please turn the page)

to about 12,000 industrial concerns requesting information on their research and development activities. A second phase of the survey will consist of intensive interviews with about 200 selected large corporations.

"The findings should be valuable to companies in planning and appraising their own research programs, besides contributing greatly to the formulation of national policies for the strengthening of scientific research," Dr. Alan T. Waterman, Director of the National Science Foundation, stated. Plans for the survey were developed in consultation with the research committee of the National Association of Manufacturers, the Industrial Research Institute and other industry groups.

The survey will give estimates on a nation-wide basis of the amounts spent for the conduct of research by size of companies and by industry groups; of the source of these funds by major economic sectors; and of the amount spent by companies to finance research conducted elsewhere, for example, in universities and research institutes. The information will also permit the comparison of research expenditures to capital expenditures, to sales, to research and development personnel and to other relevant measures. It is expected that in addition to dollar figures, the answers will furnish in considerable detail information on the numbers and use of scientific, engineering and technical manpower in industrial research and development.

Dr. Bush

### Security Clearance System Decried

Adding to the public attention on various aspects of research problems was the recently-released statement of Dr. Vannevar Bush, president of the Carnegie Institution, contending that the security risk program of the Federal Government had demoralized the scientific community and had hindered the Nation's weapons research programs. Dr. Bush, who headed the Office of Scientific Research and Development during World War II, told a Congressional group last June that the security system is "driving a wedge between the military and scientific people of the country, and is doing great harm." The noted engineering leader said that a healthy partnership between military men and scientific men which was developed during the war "is, in my opinion, now almost destroyed." He added that ". . . the morale of the scientists today as I meet them is low, so low that while they will not refuse to serve, they will serve without enthusiasm and without fruitful inspiration."

### Higher Standards For Graduate Study

Tying into the general research problem pattern was the recent action by President Eisenhower raising the requirements for draft deferment based on entry into graduate study. An Executive Order provides that a student entering graduate work after January 1, 1955, must either be in the upper one-fourth of his class in his last undergraduate year or attain a score of 80 on the qualification test prescribed by Selective Service regulations. Previously, a student was required either to be in the upper one-half of his class or attain a mark of 75 on the qualification test.

The President said that the purpose of the change is to assure that students who are deferred for graduate work "possess fully acceptable scholastic qualifications whose development could benefit both the Nation and the individual."

The effect of the order is expected to reduce to some extent the number of students entering graduate work, although it is estimated that the reduction will be relatively small as most students accepted for graduate work already meet the higher criteria. Nevertheless, the order may be interpreted as a step away from the encouragement of additional graduate study. The NSPE Education Committee is studying the matter with a view toward determining if an official Society policy should be developed.

The above developments indicate that much more will be heard in the future about research and the part engineers and scientists play in that vital aspect of national survival and progress. For, as stated in a recent editorial of a leading newspaper (Washington Evening Star, October 11, 1954):

> "Ours is a terribly learned world, caught up in a terribly learned epoch, and the simple fact is that we can no longer be miserly with our scientific pennies (and policies) without risking our very survival as a Nation."

## *Use This Page to List Your Firm Name in the . . .*

# PROFESSIONAL ENGINEERS' BUYERS GUIDE

**An Added Feature in the . . .**

**NATIONAL ENGINEERS' WEEK ISSUE** *American Engineer* **FEBRUARY 1955**

**Check the subject under which you want your product listed, fill in the information requested below and return this sheet to the AMERICAN ENGINEER. Deadline is Jan. 3, 1955.**

BUILDING MATERIALS
...Bathroom Equipment
...Bricks
...Cement
...Cinder Blocks
...Door Hangers
...Doors and Sashes
...Fireproof Tiling
...Flooring
...Floor Tile
...Heating and Ventilating Equip.
...Insulation
...Lath Boards
...Lighting Fixtures
...Lumber
...Marble
...Metal Ceilings
...Paints, Varnishes
...Plumbing Fixtures
...Radiators
...Scaffolding
...Screens
...Sheeting
...Shingles
...Slate
...Steel, structural
...Stone
...Tapestry Brick
...Terra Cotta
...Timber
...Wall Boards
...Waterproofing Materials
...Window Glass

OTHER

_____

_____

...Adding Machines
...Air Compressors
...Air Conditioners
...Aluminum
...Alarm Systems
...Architects Supplies
...Automobile Accessories
...Ball Bearings
...Batteries
...Belting, Machinery
...Blowers
...Boiler and Accessories
...Bonds (Surety)
...Bookkeeping Machines
...Brass Equipment (Bldg.)
...Chemicals, Industrial
...Chemicals, Sewage Treatment
...Coal
...Commercial Trailers
...Diesel Engines
...Disinfectants
...Drafting Materials
...Dust Collectors
...Earth Moving Equip.
...Electric Motors
...Electrical Equipment
...Electrical Supplies
...Electronic Equipment
...Electronic Computors
...Engineers Supplies
...Engines, Steam
...Evaporators
...Explosives
...Filing Equipment
...Filters, Air
...Fire Extinguishers, Equip.
...Fork Lift Trucks
...Furnaces
...Gas Engines
...Gasoline
...Generators
...Germicides
...Glue
...Graphites
...Greases
...Hardware
...Hose
...Hydraulic Equipment
...Hygienic Instruments
...Incinerators
...Insecticides
...Irrigation Equipment
...Laboratory Apparatus
...Levels
...Locks
...Lubricants
...Maps
...Marine Engines
...Marine Oils
...Materials Handling Equip.
...Materials Testing
...Micrometers
...Machinery, General
...Machinery, Special
...Motor Oils
...Motor Trucks
...Office Furniture
...Office Supplies
...Oil (Paint)
...Oil (Lubricating)
...Oil Burners
...Optical Goods
...Paint Brushes
...Paint Sprayers
...Paving Materials
...Pipe, Clay
...Pipe, Iron
...Plastics
...Precision Instruments
...Pressure Vessels
...Pumps
...Radar Equipment
...Radiators
...Radio Apparatus
...Radio Parts
...Railway Equipment
...Refractories
...Refrigeration Equip.
...Safes
...Saws
...Scales
...Scientific Instruments
...Sewerage
...Sheet Metal
...Shock Absorbers
...Slide Rules
...Steel (other than structural)
...Supplies (Machinery)
...Surveying Instruments
...Sweepers
...Tanks, Storage
...Telephone Equip.
...Tires
...Tools
...Tracing Cloth
...Tractors
...Tractor Supplies
...Trailer Accessories
...Transits
...Trucks, Motor
...Valves & Fittings
...Water Conditioning Equip.
...Water Control Apparatus
...Welding Equipment
...Well Machinery
...Winches, Hand
...Wire Cloth
...Wire Fabric
...Wrenches

OTHER

_____

_____

## FILL IN FOR YOUR FREE LISTING IN THE PROFESSIONAL ENGINEERS' BUYERS GUIDE

*Please list us in the Professional Engineers' Buyers Guide under the heading(s) checked above.*

*Firm Name* .....

*Address* .....

*City* .....*Zone* ....*State* .....

*. . . and for Increased Effectiveness we will Advertise in the National Engineers' Week Issue . . . February, 1955*

*Size of Advertisement* .....

.....*Copy Enclosed*

.....*Copy later (Deadline January 20)*

*Signature* .....

**Return this sheet to the AMERICAN ENGINEER, 1121 Fifteenth St., N.W., Washington 5, D. C.**

# An *American Engineer* SPECIAL REPORT

## *Re: Salaries in the Research Field*

● The eighth annual conference on the Administration of Research was held recently on the campus of New York University. One of the highlights of the three-day meeting was an address by Clyde E. Williams, director of the Battelle Memorial Institute of Columbus, Ohio. Mr. Williams, who is an NSPE member, was one of the participants in a symposium on "Appraising and Rewarding the Researcher's Output." His specific subject was entitled "Merit Raises (or Recognition) at Battelle," but the address was also significant because of the insight it gave into the general question of appropriate financial compensation for the engineer and scientist engaged in research.

Research, Mr. Williams pointed out, is big business in the United States. "Salaries of research personnel, comprising about half of research expenditures, thus have a significant part in the general stimulus of business and in providing markets for products," he said. "Anything that happens to salaries of research people affects business generally."

The "bigness" and the increasing importance of research, particularly since the start of World War II, plus the scarcity of technical personnel, have resulted in salary and promotion problems in research laboratories.

The shortage of adequate personnel has had two specific effects, said Mr. Williams. First, it has led to substantial increases in salary levels; and secondly, it has resulted in severe problems in salary scaling. This has come from the fact that the intense competition for newly-graduated young scientists and engineers has served to push starting salaries up disproportionately to the salaries paid to older, more experienced research men. In many instances, adequate parallel adjustments for older personnel have not been possible because of various budgetary and economic limitations, and thus many older research workers have been "caught in a squeeze." Furthermore, when salary adjustments have been made across the board, such inequities have been perpetuated.

Obviously, Mr. Williams continued, such troubles arising from manpower shortages become more acute where salary raises come en masse or on a proportional basis. On the other hand, he stated that the situation tends to rectify itself when raises are given only on the basis of merit. It was Mr. Williams' conclusion, therefore, that "the merit system is much more to be desired today," although he was also quick to caution that the workability of the merit system depends to a large extent on the sufficiency of appropriations and the general state of growth and economic health of the employing institution.

There is difficulty, too, in determining the degree of merit itself. Mr. Williams carefully pointed out that "much more than a capacity for intellectual creativity and technical knowledge is required of the research man. He must also direct his work toward a worth-while achievement, be able to 'sell' his thinking, know how to approach and get along with other people, and have an economic or business sense." He must, in other words, be possessed of many intangible qualities that are manifestly difficult to evaluate.

In analyzing the best approach to the question of research salaries, Mr. Williams pointed to productivity as "the ideal criterion for personal recompense in any business." "The persons who produce the most deserve the most pay," he said. "Productivity is the measure of an individual's contribution to absolute wealth. Hence, if there were some infallible way to measure productivity, it would be easy to set equitable salaries and to tell when salary adjustments should be made."

He continued, "But even in the simplest of organized enterprises it is extremely difficult to measure productivity. In modern research this difficulty is increased many fold—mainly because the essence of modern research is cooperative activity and the blending of the productive efforts of a number of individuals into a group pattern. To take the results of team research and to say that this percentage is creditable to that person's efforts is to destroy the structure that makes research effective. Consequently, we must use empirical rather than mathematically precise means to evaluate each man's worth. We do this by appraising other qualities of the individual that experience tells us are usually related to his productivity."

Mr. Williams dealt at length with the standards by which the Battelle Institute, which has followed the merit increase system since its establishment in 1929, analyzes the performance of its research employees. Technological competence is, of course, expected. Imagination, initiative, perception, judgment, administrative ability, are among the other qualities looked for. In addition, there are scientific integrity and selflessness, which Mr. Williams considers the most important of all.

Undoubtedly the problem of appropriate compensation for scientific research is one that will be with us more or less permanently. Mr. Williams' address was important, however, because in it he clearly outlined one workable—and working—solution, and also because it offered a keen analysis of some of the factors that contribute to compensation inequities and, consequently, to lowered morale among researchers.

## *New Yorkers Discuss Legislation*

A panel discussion on the question, *Will the NYSSPE Legislative Proposal Strengthen or Weaken the Practice of Professional Engineering in New York State?* was the program highlight of the October 21st meeting of the State Society's New York Chapter.

Taking part in the discussion were Herbert F. Roemmele, Vincent Terenzio, Samuel A. Bogen, and Charles J. Wurmfield. Anatole R. Gruehr acted as moderator.

The meeting was held at the Hotel Statler.

## *Safety Is Topic For Wisconsin Meeting*

M. B. Monsen, superintendent of Inspection and Safety for the Northern States Power Company, was the speaker at the opening fall meeting of the Western Chapter of the Wisconsin Society. Safety was the general theme of Mr. Monsen's illustrated lecture.

The meeting was held at the Linker Hotel in La Crosse.

## *Stanislaus Chapter Reports Meeting*

Charles Mitchell, general superintendent of the Flotill Cannery, Modesto, California, was the guest speaker at a recent dinner meeting of the Stanislaus Chapter of the California SPE. Following the dinner at the Hotel Covell in Modesto, the engineers and their guests went to the Flotill plant for an inspection tour.

## *Tulsa P.E.'s Meet*

*Functions of a Metropolitan Planning Board* was the subject of an address by Erling Belland, director of the Tulsa, Okla., Metropolitan Planning Commission, at a recent dinner meeting of the Tulsa Chapter, OSPE. Program arrangements were made by Rollin King.

The Tulsa Chapter has also reported that thirty-four new members have been added to its roster this year.

# CLASSIFIED ADVERTISING

**Minimum 3 lines.**
**Undisplayed: $1.50 per line.**
**Displayed: Same rate as General Advertising.**

**Positions Wanted: Undisplayed, 75c per line. Displayed, 50% off General Advertising Rates.**
**Box Number chargeable as one line.**

**Mail Box Number replies to:**
**AMERICAN ENGINEER**
**1121 15th St., N.W., Washington 5, D. C.**

### Courses, Training

**ENGINEERS**
***Learn Construction Management***

Complete course in the practical "know-how" of organizing and directing large projects on construction. For sample lessons and full particulars—write:

**GEO. E. DEATHERAGE & SON**
**Construction Consultants**
411—5th Ave. So. Lake Worth, Fla.

### Positions Available

ELECTRICAL ENGINEER. Permanent position with a leading organization engaged in world-wide projects. Requires a BS degree with 5 years experience, familiarity with requirements of national electric code, and a practical knowledge of the latest equipment used in oil refinery service. Duties will be to size, select, specify and requisition, and to review quotations on switch gears, motor starters, transformers, and all major pieces of equipment for electrical installation used in petroleum refineries and chemical plants. Please write complete details, in confidence, including salary desired. **Box 505, Room 1201, 230 West 41 St., New York 36, N. Y.**

### Positions Wanted

ENGINEER—BSCE, MCE, Registered N. Y. Age 29, Married. 5 yrs. diversified struct. design exp. Personable, ambitious. Seeking posit. of responsibility with opportunity. Will relocate. Box 1103-W. AMERICAN ENGINEER.

EXECUTIVE ENGINEER, M.E., 53, Registered; heavy experience in administration, consulting, product development and industrial engineering. Ability to make decisions and get things done. Will relocate. Now in Pittsburgh area. **Box 1102-W, American Engineer.**

### Placement Service

***The following positions are listed with The Ohio Engineers' Placement Service, Inc., address below:***

### Positions Available

CHIEF INDUSTRIAL ENGINEER, Top Level. Excellent opportunity offered IN CANADA. By internationally known concern. Heavy experience in incentives definitely required, preferably in process industry. Must be a well rounded industrial engineer with outstanding ability to get along with people. Only a man of executive caliber will be selected since he must be capable of developing into General Manager's position. This is an exceptional life-time opportunity for a man about 35 to 40, willing to locate in Canada. Open. (8-S-1)

Reg. CIVIL Engr. for sanitary engr. design and supervision of construction in medium sized consulting engr. office. Favorable working conditions and good opportunity for advancement. Northern Ohio. (64-S-4)

(Small service charge)
THE OHIO ENGINEERS' PLACEMENT SERVICE, INC.
5 East Long St., Columbus 15, Ohio
Affiliated with OSPE

## HIGHWAY ENGINEERS

### Opportunities in Wisconsin

**Expansion and Reorganization Jobs in Several Categories**

**Chief Bridge Engineer**
**Grade VI**

**Bridge Engineers—Grade V, IV**

**Highway Design, Construction and Maintenance Engineers**
**Grade IV & V**

Salary—Grade VI $687-$827
V 637- 757
IV 542- 637

Registration in Wisconsin required at Grade V and VI levels

**Permanent positions — Civil Service — Liberal vacation and sick leave — state retirement system and O.A.S.I. coverage**

***Inquire by November 20***

**State Highway Commission of Wisconsin**

**State Office Building, Madison 2, Wisconsin**

### Positions Wanted

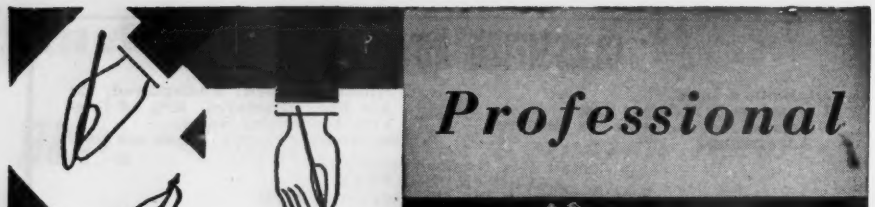
LICENSED ENGINEER, N. Y., BME, BSEE. 7 yrs Industrial exp., 2 yrs Navy Electronics. Seek position of responsibility, challenge, with Ind. or Eng. concern. Age 29; family. Will relocate. Box 905-W, AMERICAN ENGINEER.

REGISTERED MECHANICAL ENGINEER—State of New York interested in making new connections. Over twenty-five years proven background in all phases of Plant Engineering, Plant Management, and Administration. Specialized coverage in the abrasive field-crushing, treating, sizing of abrasives and manufacture of abrasive products—as chief Engineer/Plant Manager. Will consider propositions from allied industries or medium heavy machine tool field. Box 101W AMERICAN ENGINEER.

**CLASSIFIED ADS . . .**
**. . . YOUR OPPORTUNITIES**


**KENNEDY-RIEGGER DRILLING CO., Inc.**
***Diamond Drill & Core Borings***
**TEST BORINGS**
5418 Post Road New York City
Telephone KI 9-8458

**AEROFIN**
**CORPORATION**
Syracuse New York



# Professional POSTSCRIPTS

**This is your department. Your contributions to it are solicited. We want your views on subjects that affect the engineering profession directly or indirectly. Please keep your contributions short, and remember that editing may be necessary to conserve space. Your name may be omitted if you desire.—*The Editor.***

**Mr. Colin Carmichael, editor of *Machine Design* magazine, always does a good job in writing his monthly signed editorial, but we were particularly impressed with the one dealing with the Executive Research Survey reports published by NSPE as well as the Society's salary survey. We thought you would want to read it, too, so here is Editor Carmichael.**

**—PP—**

TWO recent reports published by the National Society of Professional Engineers contain much food for thought by management and by engineering employees alike. The first, titled *Professional Engineers' Income and Salary Survey*, brings out among many other facts that fifty per cent of mechanical engineers in 1952 earned $8250 or more. This figure is also the median for mechanicals with 14 or 15 years of job experience. Corresponding salary for two years' experience is $5000 and for 30 to 35 years' experience, $10,000.

These median figures do not, of course, tell the whole story. Ten per cent of mechanical engineers earned at least $18,720 and 25 per cent at least $11,860. On the other hand, another 25 per cent earned no more than $6420 and 10 per cent no more than $5240. For electrical engineers the median figure was $7940 and for all engineers, $7850.

How do engineers themselves feel about the salary situation? The second report, *How To Attract and Hold Engineering Talent*, analyzes engineers' answers to the question "Are you satisfied with your present job?" Of those answering no, 45 per cent did so because of salary and 34 per cent because of "prospects."

If many engineers feel dissatisfied with their salaries and prospects, management in turn is not wholly satisfied with the performance of many engineers. Sixty-two per cent of executives who were questioned for the second report feel that young engineers' attitudes are unprofessional. One pointed out that too many engineers feel they can understand a bigger job but overlook the fact that their output on their present job is far from satisfactory. Many fail to appreciate the relationship between time and dollars.

What can be done to improve the mutual relationships of engineers and their employers? The answer seems to lie in the word "professional." Here management can help stimulate professional attitudes by clearly differentiating between engineers and nonprofessionals in personnel policy and by exposing engineers to situations that demand the professional approach. Active encouragement to engineers to become licensed and to join their professional societies can also help. That 43 per cent of employers now pay initiation fees and dues in professional societies for at least some of their engineering employees is a healthy sign.

As for engineers, if current salaries and advancement prospects seem to leave something to be desired, they might well look into their own attitudes and conduct on the job before giving vent to their gripes. It should never be forgotten that professional recognition of engineers depends on engineers acting like professionals. Only when enough engineers do so can the profession as a whole expect to achieve the recognition that some individuals already have earned.

**—PP—**

**In September the Archbishop of Canterbury, the Most Reverend and Right Honorable Geoffrey Francis Fisher, visited this country and one of the talks he gave was at the Battell Chapel up at Yale University. A few excerpts from this outstanding man's address will, we believe, be of interest to professional engineers. Here they are . . .**

**—PP—**

We have come to speak of the humanities on the one side and the sciences on the other. And as we have thus spoken, the two have drifted further and further apart from one another. The study of Man's aspirations, what ought to be, how he ought to grow to higher things, seems to have nothing in common with the scientific study of what is in nature. Indeed, science turns roundabout man himself, and says that he is nothing but a natural phenomenon, subject entirely to physical laws. There is no such thing. . . .

In some universities the humanities were replaced by an inhumane science and philosophy of logical positivism, which says that a man cannot say anything that means anything unless it can be tested by the senses, that anything that goes beyond the senses, which cannot be tested by scientific means, they call nonsense. . . .

For a good time now the unhappy dichotomy of the humanities and the sciences have been suspect, and the revolt against it has been for a long time in progress. I think the dropping of a bomb at Hiroshima gave the impulse which has led to almost complete reconciliation in theory once more between the two approaches.

For the atom bomb compels the scientist to become a humanist, whether he wishes to or not; to accept not what has happened, but what ought to have happened. . . .

Is there something more than science which is required to save mankind from such disaster? In England —and I am sure elsewhere—this old conflict between science and religion has been dying down. You hear that somehow both belong together, as part of man's study of his own environment, and part of truth. They must be allied, and must somehow or other be complementary, one to the other.

I think it is a sign of the times that very recently, at the annual meeting of the British Association, a distinguished professor of applied mathematics delivered an address on science and religion which was exactly to this point. He recalled that in 1831, when the British Association was founded, there was the closest cooperation and understanding between science and religion. And then in the years that followed, each of them, isolated from the other, tried to forge a pattern of life

which should be all inclusive but apart from each other.

So the division had come: those who professed the humanities and those who professed the sciences became almost incapable of understanding the language or the purpose of the other.

And then this professor of applied mathematics spoke: "No study or science," he said, "makes sense unless it is related to the concept of the person." Here was Christianity coming into its own once more. "The person is the link with reality, and only in terms of the person can his environment be sensibly explored, or science have any relation to reality."

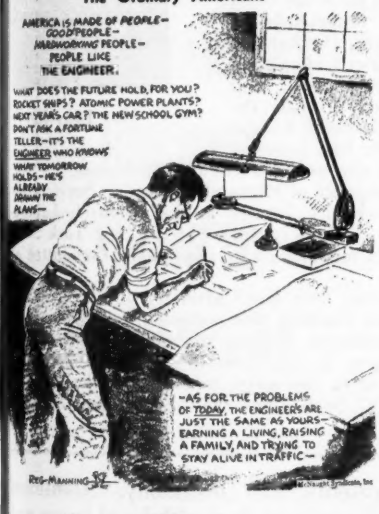
What a change from the attitude of 50 years ago. . . .

—PP—

**One of the leading newspaper syndicates in the country, McNaught, has been for some time running a cartoon series captioned, "The 'Ordinary' Americans." Here is one on the engineer. Please note the line, ". . . it's the engineer who knows what tomorrow holds — he's already drawn the plans."**

—PP—

The "Ordinary" Americans


AMERICA IS MADE OF PEOPLE— GOOD PEOPLE— HARDWORKING PEOPLE— PEOPLE LIKE THE ENGINEER.
WHAT DOES THE FUTURE HOLD FOR YOU? ROCKET SHIPS? ATOMIC POWER PLANTS? NEXT YEAR'S CAR? THE NEW SCHOOL GYM? DON'T ASK A FORTUNE TELLER—IT'S THE ENGINEER WHO KNOWS WHAT TOMORROW HOLDS—HE'S ALREADY DRAWN THE PLANS—
—AS FOR THE PROBLEMS OF TODAY, THE ENGINEER'S ARE JUST THE SAME AS YOURS— EARNING A LIVING, RAISING A FAMILY, AND TRYING TO STAY ALIVE IN TRAFFIC—
REG MANNING '54

—PP—

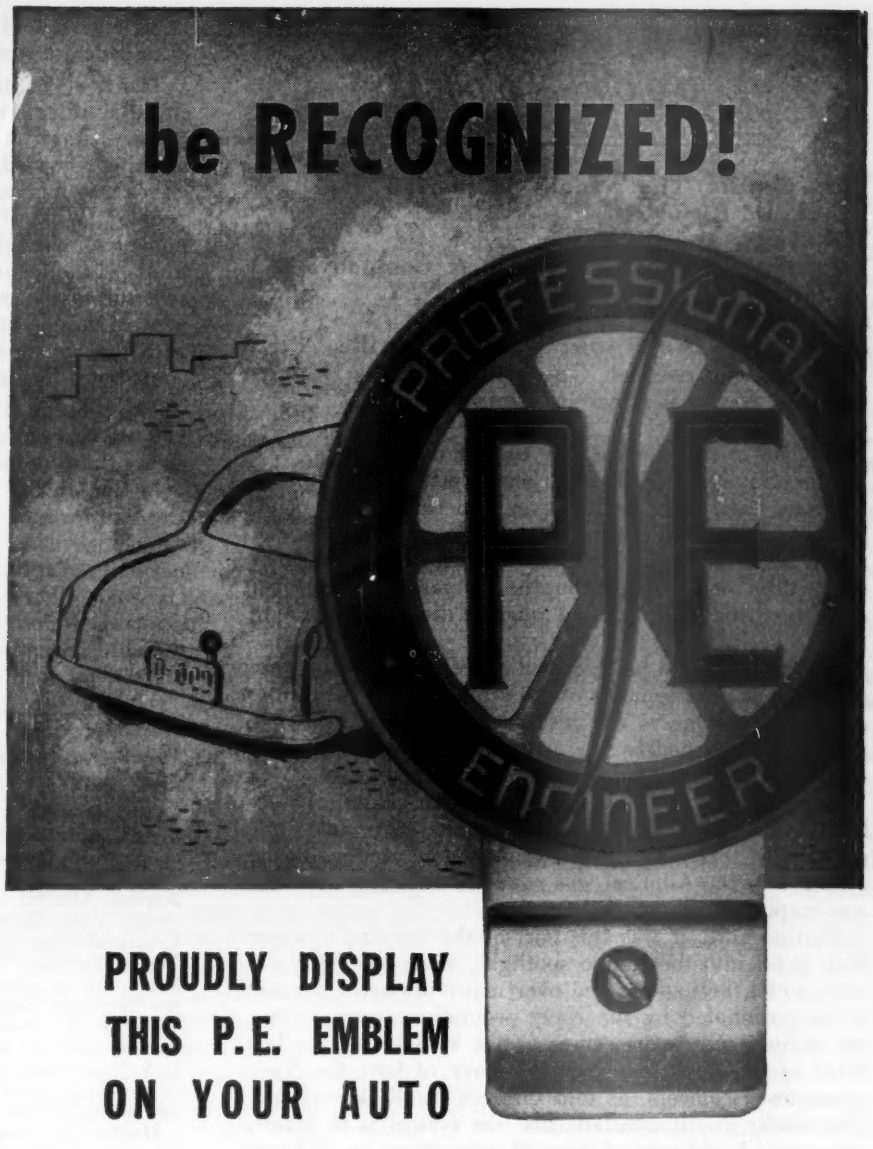
**The drafting of scientists and engineers into the Armed Forces is not a new problem. Seldom, however, has it been dealt with in as expertly a manner as in an editorial appearing in the October 16, 1954, issue of the *Saturday Evening Post*. We have asked for and received permission from the *Post* to reprint much of it below.**

—PP—

Everybody talks about "push-but-

(*Continued on page* 36)


be RECOGNIZED!




PROUDLY DISPLAY THIS P.E. EMBLEM ON YOUR AUTO

This distinctive 3¼-inch emblem belongs on your car. It comes complete, ready to attach to your license plate. On heavy metal, it is built to last. Colors are black and gold. *ORDER YOURS NOW!*

*MAIL THIS COUPON TODAY!*

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
1121 Fifteenth St., N.W., Washington 5, D. C.

Please send me at once the 3¼-inch P.E. Emblem for my car. I enclose.....check.....money order for $2.50 to cover the cost of the emblem, handling and mailing charges. Send to:

(Name) .....

(Address) .....

(City).....(State).....

I am registered in (name of state).....

I am.....am not.....a member of NSPE.

## book looks

***The Book:*** **The Atomic Submarine and Admiral Rickover**
***The Author:*** **Clay Blair, Jr.**
***The Publisher:*** **Henry Holt & Company, 383 Madison Avenue, New York 17, N. Y.**
***Price:*** **$3.50**
***Reviewing the Book:*** **T. M. Linville, P.E., Manager, Research Operation Services Department, General Electric Company**

In spite of the fact that the title of this book is "The Atomic Submarine" in big, heavy print with the appendage, "and Captain Rickover," in small, light print, it decidedly *is not* the story of the Atomic Submarine, and decidedly *is* the story of Admiral Rickover. The reader learns little, or nothing, about the submarine, and a great deal about the Admiral, and what he did to get the submarine built.

The reader could be informed as well if the story were about other achievements of Admiral Rickover's, for the atomic submarine is not his only outstanding achievement, accomplished by the same effective ways with the same concentration on getting the job done.

However, the fact that the story of the Admiral's actions, and his difficulties, were in the interest of an *atomic* submarine, serves to make it immediately obvious to the reader that the Admiral was equal to radically new and awe-inspiring tasks.

Furthermore, it was this part of the Admiral's career that came into the public spotlight, when his Navy career, which he had carried over many obstacles, seemed to be terminated by the Navy promotion system. Thus, the atomic submarine serves as the vehicle for the last third of the book, which is the story of how the Navy promotes its officers, as told through the Rickover case. The reader might conclude that the system is to blame, whereas it is the way of most all promotions in all kinds of enterprises and undoubtedly has served the Navy well. But the story shows that the system has difficulty in handling the case of an individual of decidedly unusual characteristics and a determined non-conformist, in spite of the great value of his characteristics. But, in spite of difficulties, the book shows that an outstanding man is likely to get his just rewards *in a free society*. The same situation behind the Iron Curtain, and the Admiral might well be in Siberia, although Rickover would surely long since have fled to a free country.

The book is only a part of the story of a determined, effective, direct-acting individualist. It is a mid-twentieth century story of a man dealing with difficulties, and utilizing knowledge and resources unmatched before. It leaves this reader wondering, what if we had many such people? What if we had none? Moreover, it leaves a hunger for the full picture of the man, his life off the job, to dispel the feeling that there is no such life, and to present the man whole so that one can speculate as to the why of him. Then, too, through personal acquaintance with the book's hero, this reviewer has seen more that contributes to his stature than the book presents.

The concept of the Navy as a place where you do what you are told suffers some knockout punches for the story shows that the individual in the Navy has much freedom of action at his command. One sees that the Navy has freedom for and, therefore, has the great officers and men who have made it great. Otherwise, there would be no naval innovations, including the atomic submarine, unless some other organization with freedom for individual enterprise, motivated by the country's need, stepped into the void. But the book gives the welcome assurance that there is no such void.

### *Meet the Reviewer . . .*

Mr. Linville

Thomas M. Linville has received the Charles A. Coffin Award of the General Electric Company for his contributions to electrical propulsion machinery for submarines, during World War II, overlapping Admiral Rickover's duty in charge of the Electrical Section of the Bureau of Ships. He was given the U. S. Navy's Certificate of Commendation largely for the same work. He went to the Submarine Base at Pearl Harbor in 1942 at the Admiral's request, and studied German submarines with the U. S. Naval Technical Mission in Europe in the spring of 1945. He has, however, had no connection with the work on atomic submarines.

Mr. Linville is now manager of Research Operation Services for the General Electric Company, located at the Research Laboratory at Schenectady, N. Y. He is president of the New York State SPE, and a director and member of the Executive Committee of the AIEE.

He holds an E.E. degree from the University of Virginia, and an AMP certificate from Harvard. He is the author of many articles on electrical machinery, and on professional engineering and management subjects. In addition to his NSPE and other engineering affiliations, he is also active in the American Management Association and the Society for the Advancement of Management.

## Revised Edition of S.S. Aidlin's Book Soon To Appear

A new, revised edition of Samuel S. Aidlin's *Professional Engineering—Economics & Practice* is about to come off the press, according to an announcement by Pelex Publishers, Inc., of New York City.

The author, a prominent member of the Kings County Chapter of the New York State Society of Professional Engineers and NSPE, has been widely acclaimed for his well-coordinated development of the principles of economics and business practice as applicable to engineering which he presents in the book.

Included with the new material for the revised edition of Mr. Aidlin's manual is a chapter on taxes, which has been given pre-publication release by Pelex Publishers. The chapter is a critique of tax laws and rulings particularly as they hamper the replacement of obsolete machine tools with new, up-to-date models. Because of this situation, the author feels that "We have lagged behind various other countries in plant modernization."

Other features of the book include studies of problems in professional ethics, fees, contracts, business law, patents, and testimony. Additional discussions deal with bond issues and cost comparisons and evaluations. Extensive tables are also used for reference and calculations.

Complete information about the revised edition is available from Pelex Publishers, Inc., 95 Liberty Street, New York 6, N. Y.

**Read the AE *Every* Month! It is the *only* magazine for the registered, Professional Engineer**

## *N.S.P.E. Believes*

# THE NEW HEADQUARTERS BUILDING FINANCED BY MEMBERS

BY PAUL H. ROBBINS, P.E.

*Executive Director*

N.S.P.E.

ONCE the studies of the feasibility of a headquarters building had shown the wisdom of NSPE's owning its own building, as against continuing to rent headquarters space, the question of the procedure for financing came to the fore. It was obvious from the start that there were several approaches that might be taken. The building could probably be financed by usual mortgage financing with a bank or other lending institution; building participation certificates could be issued to be sold to the members; or a combination of the two; whichever seemed to be the procedure best adaptable to the NSPE situation, could be used. Each had advantages and disadvantages. The matter was presented to the Board of Directors, and they selected the method of issuing building participation certificates, basing their decision on a very fundamental belief of NSPE that to the greatest degree possible, members should be allowed to participate in every activity of the Society.

The degree to which the members would wish to participate, however, could not be determined without a direct indication from them. Before going ahead, therefore, with the expenses involved in securing clearance from State Securities Commissions, printing certificates and setting up the machinery for handling this method of financing, it was felt an indication from the membership should be secured. Accordingly, a letter from President Shoch was addressed to each member. As has been reported, the response indicated once again that the Board of Directors, because they are chosen at the state level and represent the state membership, reflect very closely the wishes of the members.

Not only did the response to the President's letter indicate the desire of the membership to participate in the financing of the building, but it also indicated that they wished to participate to the full extent of the cost. Steps were immediately taken to file with the State Securities Commissions, the certificates were prepared, the prospectus reproduced, and the members will shortly purchase their certificates. There is much to commend the procedure adopted. Not only does it allow the maximum of participation on the part of the membership, but the cost of carrying the financing accrues back to the members instead of to a lending institution. It does not take higher mathematics to see that up to $16,000 per year will be returned via interest to these members purchasing certificates. Of course, this will decrease each year as a portion of the certificates are redeemed. In twenty years, the Society will own a debt-free building, having had the use of it in the interim at a cost less than the Society would have had to pay to rent comparable space for which there would be only rent receipts at the end of the twenty-year period.

The whole matter of the headquarters building, while having great appeal in establishing a firm footing in the Nation's Capital for your National Society, has been approached and evaluated solely on a business basis. The building participation certificates are, and will continue to be, considered as a prime obligation, backed by the full faith and credit of the Society. In the opinion of the experts who have studied this problem closely, it is "good business" for the Society. Washington real estate is a good investment. There has never been a depression in Washington real estate.

It will be noted in the prospectus that the sale of certificates is limited to members of the Society, its state and local units. Several of the Chapters and State Societies are planning to invest some of their surplus funds in building certificates. All such orders will be honored to the degree that it does not deprive each member who so desires to have at least one certificate. This is another means of permitting local participation in the building which will be the headquarters for professional engineers in the Nation's Capital.

Again, to permit the broadest participation possible, all members ordering a certificate before December 31, 1954, will be allotted at least one certificate, to the limit of the issue of $400,000. Those ordering two or more certificates will be allotted a second certificate, and so on until the $400,000 limit is reached.

Of course, some may be disappointed in requesting a greater allotment than the limit will permit. The final determination will be based on the first orders received, so it is desirable for those wishing to participate to get their subscription form and check mailed in to headquarters as soon as possible. The procedure is in the best tradition of one of NSPE's most basic tenets. The future of engineering lies in the degree to which individual engineers are willing to support the profession with their time, their talent, and their finances.—***End.***

# With Our Members . . .

*Certificate Presentation*

## Richmond Chapter Sponsors Ceremony As State Board President Officiates

The Richmond Chapter of the Virginia SPE began the fall season with what is believed to have been the first public presentation of engineering registration certificates in the State. Presiding at the presentation ceremony was James A. Rives, president of the Virginia Board for the Examination and Certification of Architects, Professional Engineers and Land Surveyors.

Eleven newly-registered engineers received their licenses at the meeting. They included six Chesapeake and Ohio Railway Company men—W. T. Davis, R. H. Abbott, L. C. Harmon, S. H. Poore, G. K. Davis, and D. C. Teal—thus completing the program of that railway's Southern Division to have all engineers in responsible positions registered with the State.

Other men receiving certificates included H. G. Gallison, H. H. Kolb, U. J. Moogalian, C. E. Meyer, and A. G. Wheeler. In addition, certificates were mailed to Frank Van Benthuysen, G. T. Georges, Chilton Shorter, Charles Wood, John East, Cabell Gwathney, and John Sullivan, who were unable to be present for the actual presentation ceremony.

Fred P. Wilmer is president of the chapter.

### *Canadian Lecture In Rochester*

*The Twentieth Century Belongs to Canada* was the subject chosen by R. F. Shaw, a well-known Canadian professional engineer, for a recent lecture he gave in Rochester, N. Y., before the members of the local chapter of the New York State Society. Mr. Shaw, who is vice president of The Foundation Company of Canada, Ltd., Montreal, detailed the various phases and factors in Canadian industrial progress in his talk, and gave impressive credit to the country's professional engineers, saying that no part of the progress would be possible without their skill.

### *Pennsylvanians Aid Industrial Exposition*

Among the features of the recent Pennsylvania Industrial and Construction Exposition, held in Harrisburg, Sept. 20-25, was a special booth sponsored by the Pennsylvania SPE. The booth was dedicated to providing an explanation of the meaning of the term, "professional engineer." to the more than 500,000 visitors who toured the exposition at the huge State Farm Show Building.

A display of State and National Society publications and information about registration was arranged under the PSPE banner, and the booth was manned at all times by at least one attendant. Harrisburg Chapter members volunteered to assist in the effort, and several prospective members were found among the visitors.

### *D. C. Engineers Hear McCartha*

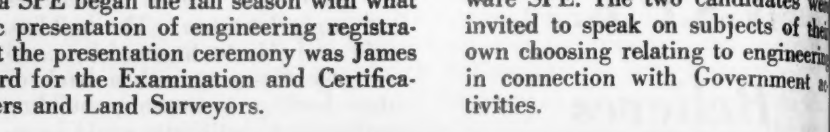
The opening meeting of the fall season for the members of the District of Columbia SPE featured a talk by the Society's new president, Walter H. McCartha. Mr. McCartha discussed the question, *Do Engineering Societies Need a Forceful Professional Program to Improve Their Economic Status?*

Following Mr. McCartha's talk, a movie dealing with the construction of the Chesapeake Bay Bridge was shown.

### *Senatorial Candidates Speak In Delaware*

Delaware's two Senatorial candidates in the current election—Senator J. Allen Frear, Jr., Democrat, and Congressman Herbert B. Warburton, Republican—were guests at the October 14 dinner meeting of the Delaware SPE. The two candidates were invited to speak on subjects of their own choosing relating to engineering in connection with Government activities.

### French Engineers Honor Steinman




**The above medal, especially designed and minted to honor Dr. David B. Steinman, was presented to him during a recent European visit by the Professional Engineers of France. The face of the medal shows the likeness of Dr. Steinman; the reverse side shows a perspective of his design for the Messina Straits Bridge which will be the longest span in the world.**

### *Lee E. Gibbs Speaks In Indiana*

Lee E. Gibbs, manager of Technical Services for Revere Copper and Brass, Inc., Rome, N. Y., was guest speaker at a recent dinner meeting of the Southwestern Indiana Chapter of the Indiana Society, according to Bernard Daley, president of the Indiana group. Two other Revere men—Arthur Putnam of Rome, N. Y., and Willard Westerman, area engineer for Louisville—were guests of the chapter with Mr. Gibbs.

### *Central Arizona Chapter Meets*

The Central Arizona Chapter of the Arizona Society began the fall season with a dinner meeting at the Armed Forces Officers' Club in Phoenix. A business session was also held at which the reports of the various officers and committees were heard and plans for future programs were initiated. The chapter members also passed by unanimous vote a new set of by-laws for the group.

## *18th Annual Meeting In Missouri*

The Statler Hotel in St. Louis was the scene of the 18th annual meeting of the Missouri Society of Professional Engineers, October 21-23.

Missouri President J. W. Hubler presided at the three-day session. A welcoming address was given by the Hon. Raymond R. Tucker, P.E., Mayor of St. Louis and member of the Society. Paul H. Robbins, NSPE executive director, gave the keynote address on the subject, *The Unity Movement and NSPE.*

Other speakers featured at the various convention events included NSPE President Clarence T. Shoch, General L. J. Sverdrup, president of Sverdrup & Parcel, Inc., and J. F. Holland, general counsel of the Pevely Dairy Co., St. Louis.

Three important panel discussions were also included in the program schedule. The first on *The Engineer and His Civic Responsibilities* was moderated by A. C. Kirkwood and featured as panelists: J. W. Hubler, MSPE president; Ray O. Joslyn, president, Layne-Western Co., Kansas City; Albert L. Waters, president, The Carter-Warters Corp., Kansas City; and Stanley I. Dale, Mayor of St. Joseph, Mo.

The second panel was based on the theme, *Tell It To the Board,* and was moderated by Paul N. Doll, new MSPE executive secretary. The panelists were the Society's officers: J. W. Hubler, president; H. J. Bruegging, first vice president; A. C. Kirkwood, second vice president; D. L. Robinson, treasurer; and H. L. Ferguson, secretary.

The third panel discussion dealt with *Common Problems of Architects and Engineers.* Garvin H. Dyer, manager and chief engineer, Independence Division, Missouri Water Co., was the moderator, while participants included: A. H. Baum, St. Louis building commissioner; J. Harvie of Hale and Harvie, consulting engineers; Rex L. Becker of Froese, Maack, and Becker, architects; and William A. Grolock of Jamieson, Spearl, Hammond & Grolock, architects.

A special program was also provided for the ladies by a committee headed by Mrs. E. W. Butler.

## *Erie County Chapter Dedicates Memorial*

Members of the Erie County Chapter of the New York State SPE have recently taken part in the dedication of a memorial plaque honoring the late Arthur B. Weaver, long-time chapter treasurer. The bronze plaque, which was sponsored by the chapter, is mounted on a huge rock set into the lawn in front of the lodge at Chestnut Ridge Park, Mr. Weaver's favorite among the many county parks which he helped develop as county parks engineer.

The dedication ceremony was conducted by H. Dale Bossert, past president of the Erie County Chapter, with Oliver Walters, Erie County Commissioner of Parks, and Franklin S. Helfter, chapter president also participating. Mrs. Weaver, Mr. Aster Weaver, the deceased engineer's brother, and many other relatives and friends were also present for the dedication.

## *Virginia SPE Elects New Officers*

Highlight of the opening session of the sixth annual meeting of the Virginia Society of Professional Engineers was the election of new officers for the coming year. James J. Corbalis of Alexandria was chosen president to succeed W. A. Cox, Jr., of Virginia Beach.

Other officers elected were: G. H. Ruston of Roanoke, first vice president; E. B. Boynton, Richmond, second vice president; and William T. St. Clair, Richmond, secretary-treasurer. John B. McGaughy of Norfolk was re-elected as national director, and L. G. Rich of Blacksburg was named state director-at-large.

The meeting was held at the Cavalier Club, Virginia Beach, on October 9th.

## *Tennessee SPE Meets With State AIA*

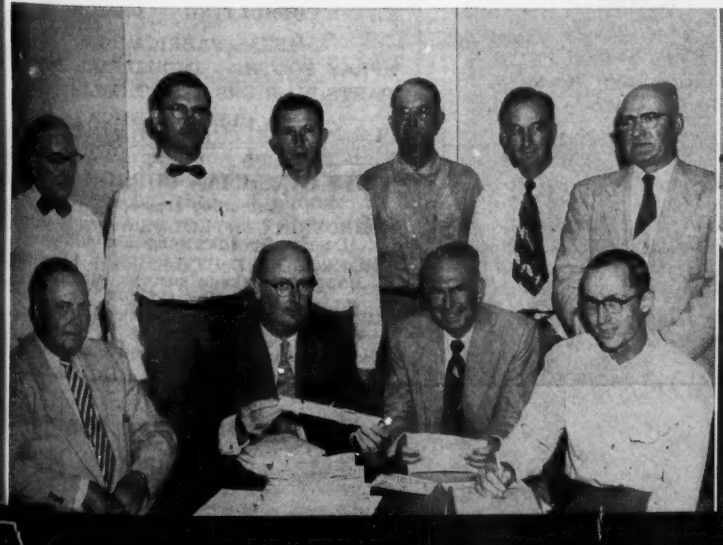
Members of the Tennessee Society of Professional Engineers and the Tennessee Chapter of the American Institute of Architects held a joint meeting on October 18 at the Farragut Hotel in Knoxville. Also invited to be present for the occasion were engineering and architectural students from the University of Tennessee and engineers with TVA.

George H. Miehls, president of Albert Kahn Associated Architects & Engineers of Detroit, was guest speaker for the occasion. His address dealt with a phase of the American industrial scene.

**. . . *more news on page 33***

**CHARTING PROFESSIONAL PROGRAMS — Pictured in the photo at the left, below, as they confer on program plans, are the officers of the recently merged Kansas Engineering Society and Kansas Society of Professional Engineers. Seated, l. to r., are: Carl Gray, KSPE treasurer; William F. Ryan, KSPE president; Walter Johnson, KES president (now KES chairman) and W. R. Davis, KSPE secretary. Standing, l. to r., are: D. F. Joslin, chairman, Publications Committee and editor, *Kansas Professional Engineer;* M. V. Reagan, KSPE state director; L. F. Sanderson, KSPE director; Abe Pratt, past president of KSPE; Leland Hobson, NSPE national director, and Malcolm Steele, KSPE state director.**

**The picture at the right was made during a conference of the Executive Committee of the Maryland SPE, which was called to discuss activities for the current year. L. to r. around the table are: Albert M. Kroft, secretary-treasurer; Hiram W. Woodward, retiring chairman, Ethical Practices Committee; Henry A. Naylor, chairman, Attendance Committee; Paul L. Holland, chairman, Legislative Committee; Ernest H. Hanhart, first vice president; Col. L. G. Smith, president; Frank E. Winslow, 2nd v. pres.; John F. Hennessy, chm., Program Committee, and Stewart W. Parker, executive secretary.**



### PALMER AND BAKER, INC.

**Consulting Engineers — Architects**

Surveys, Reports, Design, Supervision, Consultation, Traffic Problems, Tunnels, Bridges, Highways, Airports, Industrial Buildings, Waterfront & Harbor Structures. Complete Soils, Materials & Chemical Laboratories.

**Mobile, Ala.** **New Orleans, La.**
**Harvey, Louisiana**

### A. W. WILLIAMS INSPECTION CO.

**Mobile, Ala.**

***Established 1921***

Inspections—Tests—Analyses
Sampling
Foundation Investigations
Representatives throughout U.S.A.

**Member A.C.I.L.**

### KAISER ENGINEERS

Division of Henry J. Kaiser Company

**ENGINEERS — CONTRACTORS**

**1924 Broadway, Oakland 12, California**

### C. M. HATHAWAY

**Consulting Engineer**

Electrical—Mechanical—Electronic
Product Development—Project Engineering
Production Designs—Planning
Research—Model Work and Pilot Manufacturing

**1315 S. Clarkson St.** **Denver 10, Colo.**

### F. A. SANDO

**Consulting Engineer**

Steam Power & Boiler Plants
Incineration Plants

**429 E. 14th Ave.** **Denver 3, Colo.**

### SOUTH FLORIDA TEST SERVICE

**Testing—Inspection—Research—Engineers**

Consultants and specialists in corrosion, weathering and sunlight testing.

**4301 N.W. 7th Street** **Miami 34, Florida**

Member A. C. I. L.

### LAW—BARROW—AGEE LABORATORIES, INC.

Foundation Investigations

Physical & Chemical Testing

**Main Laboratories: Atlanta, Ga. Charlotte, N. C., Albany, Ga., Tampa, Fla.**

### MERRITT & WELKER

**Engineers**

Water Systems — Natural Gas Systems
Sewer Systems — Streets & Roads

**Marietta, Georgia**

### ROBERT AND COMPANY ASSOCIATES

**Consulting and Designing Engineers**

Industrial Plants—Municipal, Highway and Airport Improvements — Power Plants — Water Supply — Sewage and Industrial Waste Disposal — Appraisals — Reports.

**Atlanta** **Georgia**

### J PAUL BISHOP and ASSOCIATES

**Registered Professional Engineers**

Consultants—Food and Chemical Processes
Specializing in:
Designing, Estimating, Engineering and Constructing of New and the Modernizing of Old Food and Chemical Plants and Processes

**14 East Washington Street**
**Champaign** **Illinois**

### CONSOER, TOWNSEND and ASSOCIATES

Water Supply, Sewerage, Flood Control and Drainage, Bridges, Express Highways, Paving, Power Plant, Appraisals, Reports, Traffic Studies, Airports Gas & Electric Transmission Lines

**351 E. Ohio St., Chicago 11, Illinois**
**9½ N. Indiana St., Greencastle, Ind.**

### CRESCENT ENGINEERING COMPANY, INC.

**Contracting & Consulting Electrical Engineers**

Design, Supervision and Construction
Process Power and Lighting for Industrial Plants

**6455 S. Central Avenue, Chicago 38, Illinois**

### DeLEUW, CATHER & COMPANY

**Consulting Engineers**

Transportation, Public Transit and Traffic Problems

Industrial Plants, Grade Separations, Railroads, Subways, Power Plants, Expressways, Tunnels, Municipal Works

**150 N. Wacker Drive** **79 McAllister St.**
**Chicago 6** **San Francisco 2**

### LOUIS J. LUCAS

**Industrial Management Engineer**

Production — Sales — Administration

**1055 Granville Avenue**
**Chicago 40, Illinois**

### WILSON & COMPANY

**ENGINEERS**

**Salina, Kansas**
**Albuquerque, New Mexico**
**Denver, Colorado**

### EUSTIS ENGINEERING COMPANY

FOUNDATION AND SOIL MECHANICS INVESTIGATIONS
Soil Borings—Laboratory Tests
Foundation Analyses—Reports

**3635 Airline Highway**
**New Orleans 20, La.**

### H. P. WHITE LABORATORY

**MECHANICAL TESTING — ANALYSIS DEVELOPMENT ENGINEERING**

Ordnance and Ballistical Research
High Speed Still and Motion Picture Studies

**Box 331, Bel Air, Maryland**

### WHITMAN, REQUARDT & ASSOCIATES

**Engineers — Consultants**

Civil—Sanitary—Structural
Mechanical—Electrical
Reports, Plans Supervision, Appraisals

**1304 St. Paul Street, Baltimore 2, Maryland**

### ROGER BARRETT BROSS

***Registered Professional Engineer***

Special Electric Motors & Drives
Electromagnetic Devices
Design & Development
Testing & Consulting

**25 Curtis Road** **Natick, Mass.**

### FAY, SPOFFORD & THORNDIKE

**Engineers**

John Ayer — Ralph W. Horne
Bion A. Bowman — William L. Hyland
Carroll A. Farwell — Frank L. Lincoln
Howard J. Williams

Airports, Bridges, Turnpikes
Water Supply, Sewerage, Drainage
Port and Terminal Works
Industrial Building

**Boston** **New York**

### METCALF & EDDY

**Engineers**

Water, Sewage, Drainage, Refuse and Industrial Wastes Problems

Airfields — Valuations

Laboratory

**Statler Building** **Boston 16, Mass.**

### COMMONWEALTH ASSOCIATES INC.

**Consulting and Design Engineers**

Power Generation
Electric—Gas—Water Systems
Industrial Planning

**252 W. Cortland St.** **Jackson, Michigan**

### ORRIN E. FENN

**Industrial Engineering and Manufacturing**

**CONSULTING DESIGN**

METAL FABRICATION
SPRAY BOOTHS INDUSTRIAL OVENS
PARTS WASHERS DUST COLLECTORS

**MT. CLEMENS, MICH**

### THE HINCHMAN CORPORATION

**Consulting Engineers**

CORROSION CONTROL—Surveys, Reports, Design, Specifications, Evaluation
UNDERGROUND UTILITIES — Location, Mapping, leakage surveys, electrical grounding systems
HOLLOW PILING—Directional Surveys by electronics

**Francis Palms Building** **Detroit 1, Mich.**

**BETTENBURG, TOWNSEND & STOLTE**
**Registered Professional Engineers**

A complete professional service

**1487 Marshall Ave., St. Paul 4, Minn.**
**Tel.: NEstor 6191**

---

**BLACK & VEATCH**
**Consulting Engineers**

Water—Sewage—Electricity—Industry
Reports, Design
Supervision of Construction
Investigations, Valuation and Rates

**4706 Broadway, Kansas City 2, Mo.**

---

**B. H. BACKLUND & ASSOCIATES, INC.**
**Consulting Engineers and Architects**

Architectural, Civil,
Municipal, Structural.

**4924 Poppleton Avenue**
**Omaha 6, Nebraska**

---

**GREER & McCLELLAND**
**Consulting Engineers**

FOUNDATION
INVESTIGATIONS

**98 Greenwood Ave.** **Montclair, N. J.**
**2649 N. Main St.** **Houston, Texas**

---

**FRANK E. HARLEY AND ASSOCIATES**

Water Works, Sewage, Municipal
Highways

**Harley Building**

**260 Godwin Avenue** **Wyckoff, N. J.**

---

**W. W. SLOCUM & CO.**
**Engineers**

Industrial Engineering
Complete Project Design
Management Engineering

**National Newark Building**

**744 Broad St.** **Newark, N. J.**

---

**BROWN & BLAUVELT**

Industrial Plants, Bridges, Dams, Airports, Expressways, Parkways, Highways, Preliminary Reports, Engineering Design, Construction Supervision, Material Controls and Testing, Municipal Engineering Services, Tax Maps, Surveying

**468 Fourth Avenue** **New York 16, N. Y.**

---

**HOWARD, NEEDLES, TAMMEN & BERGENDOFF**
**Consulting Engineers**

Bridges and Structures
Foundations, Highways
Administrative Services

**1805 Grand Ave.** **Kansas City 8, Mo.**
**55 Liberty St.** **New York 5, N. Y.**

---

**KNAPPEN-TIPPETS ABBETT-McCARTHY**
**Engineers**

Ports, Harbors, Flood Control, Irrigation, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

**62 West 47th Street** **New York City**

***Restricted to Registered Professional Engineers . . . Directory Continued on Next Page***

## *North Ohio Conference Is Reported*

The Northern Ohio Conference of the Ohio SPE was held October 8-9 at the University Club in Akron with President P. A. Harlamert presiding. Participants were members of the Akron, Youngstown, Toledo, Canton, and Cleveland Chapters.

The two featured guest speakers for the event were Mrs. Elisabeth S. Buehl of Buehl & Associates, advertising agency, who spoke on *Program Design for Effective Service*, and Warner Seely, vice president, Warner & Swasey Co., whose address was entitled *Let the Other Fellow Know*.

The major part of the two-day meeting was devoted to intensive study and discussion of the Ohio Society's major programs. A varied social schedule was also arranged for those in attendance.

## *Future P.E.'s Feted*

Two NSPE chapters have recently reported meetings especially arranged for potential P.E.'s.

Members of the Travis Chapter of the Texas Society were hosts at a late September barbecue dinner for the senior engineering students of the University of Texas. The barbecue was held at Randy's Circle R in Austin, and the evening's program also included a tour through the Jefferson Laboratories.

The October 8th dinner meeting of the Engineers' Club of Jefferson City, Missouri SPE group, was marked by each member's bringing as his guest one or more boys interested in the prospect of an engineering education. Huber O. Croft, dean of the College of Engineering, University of Missouri, was the featured speaker.

***. . . more news on page 35***

**OKLAHOMA AUXILIARY — Pictured in the photo at the right are the officers of the recently-organized State Auxiliary to the Oklahoma SPE. Seated, l. to r., are: Mrs. Harold Pickens, third vice president; Mrs. J. Roy Black, secretary, and Mrs. Calvin Childress, first vice president. Standing, l. to r., are Mrs. C. A. Stoldt, second vice president; Mrs. H. G. Thuesen, treasurer, and Mrs. William Fell, president.**

Alphabetized by States

# Professional Directory

New York. Pennsylvania

### MADIGAN-HYLAND
**Consulting Engineers**

28-04 41st Avenue

Long Island City, New York

---

### JAMES P. O'DONNELL
**Engineers**

39 Broadway — New York 6, N. Y.
Bowie Building — Beaumont, Texas

---

### PARSONS, BRINCKERHOFF, HALL & MACDONALD
***Engineers***

Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Dams, Canals, Traffic, Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.

**51 Broadway, New York 6, N. Y.**

---

### SEELYE STEVENSON VALUE & KNECHT
**Consulting Engineers**
**Richard E. Dougherty, Consultant**

Airports, Highways, Bridges, Dams, Water Supply, Sanitation, Tunnels, Industrial Plants, Concrete, Steel, Industrial Waste Disposal, Foundations, Soil Studies.

Civil—Mechanical—Electrical

**101 Park Avenue — New York 17, N. Y.**

---

### SINGSTAD & BAILLIE
**Consulting Engineers**

Ole Singstad — David G. Baillie, Jr.

Tunnels, Subways, Highways
Foundations, Parking Garages
Investigations, Reports, Design
Specifications, Supervision

**24 State St. — New York 4, N. Y.**

---

### D. B. STEINMAN
**Consulting Engineer**

**BRIDGES**

**Design — Construction — Investigation**
**Reports — Strengthening Advisory Service**

**117 Liberty Street — NEW YORK CITY**

---

### SYSKA & HENNESSY, INC.
**Engineers**

Design, Reports, Consultation
Power Plant, Disposal Plant, Water Systems

**NEW YORK, N. Y.**

---

**Chicago — Cleveland — St. Louis**

### ADACHE & CASE, ENGINEERS
**The Arcade, Cleveland 14, Ohio**

Consulting • Design • Reports
• Mechanical • Electrical • Civil
• Industrial Buildings •

---

### ELMER S. BARRETT ASSOCIATES
**Consulting Engineers**

Surveys—Design—Inspection

Highways — Municipal
Bridges — Reports
Transmission Lines

**249 S. Paint St. — Chillicothe, Ohio**
**Phone: 34600**

---

### GEORGE W. BRANDT, ENGINEER
**Consulting • Design •**
**Mechanical • Development • Fabrication**

**Box 101 — West Milton, Ohio**

---

### GUSTAVE M. GOLDSMITH
**Consulting Engineer**

General Structures — Plant Layout

Design—Investigation—Quantity Surveys

**1734 Bella Vista — Cincinnati 37, Ohio**

---

### EMMET J. McDONALD
**CIVIL ENGINEER**

HIGHWAYS, MUNICIPAL, SURVEYS

**326 S. Main St. — Akron 8, Ohio**

---

### MAURICE P. MILLIKEN
**Research and Development Consultant**
**Professional Engineer**

Experimental stress analysis. Physical testing, Consultation, Reports, Product Design, Experimental tests in your plant.

**239 Marguerite Ave., Cuyahoga Falls, Ohio**

---

FOUNDATION INVESTIGATIONS
SOIL MECHANICS—BORINGS
WATER DISTRIBUTION
STUDIES—WASTE SURVEYS

### THE H. C. NUTTING CO.

**4120 Airport Rd., Cincinnati, O.**
**2145 N.W., 2nd Ave., Miami, Fla.**

---

### TOLEDO TESTING LABORATORY
**Engineers and Chemists**

Concrete — Soils — Asphalt
Inspection — Tests — Supervision
Consultation — Specifications and Investigation of
Engineering Works and Materials

**1810 North 12th St. — Toledo 2, Ohio**

---

### OKLAHOMA TESTING LABORATORIES
Registered Engineers—Chemists
**Oklahoma City, Okla.**
**Materials Testing and Inspection**

Member A. C. I. L.

**C. A. Lashbrook** — Owner-Director
**M. A. Witte** — Chief Engineer

---

### ALBRIGHT & FRIEL, INC.
**Consulting Engineers**

COMPLETE ENGINEERING SERVICE
Including Design and Supervision of Construction
Water, Sewage and Industrial Wastes Problems
Airfields, Refuse Incinerators, Dams
Power Plants, Flood Control, Industrial Buildings
City Planning, Reports, Appraisals and Rates
Laboratory For Chemical & Bacteriological Analyses

**121 South Broad St., Philadelphia 7, Pa.**

---

### ARK ENGINEERING COMPANY
**Consulting Electronic Engineering**

Radio Interference Measurements and Control
F.C.C. Equipment Certification
Electronic Development—Technical Writing

**431 W. Tabor Road**
**Philadelphia 20, Pennsylvania**
**Phone: LIvingston 8-1545**

---

### MICHAEL BAKER, JR., INC.
**Consulting Engineers**

Highways, Airports, Waterworks, Sewers, Sewage Treatment, City Planning, Surveys, Photogrammetric Mapping

**Baker Building—Rochester, Penna.**
**Branch Offices**
**Harrisburg, Pa. Jackson, Miss.**
**College Park, Maryland**

---

### CAPITOL ENGINEERING CORPORATION
**Engineers—Constructors—Management**

Design and Surveys — Roads and Streets
Sewer Systems — Water Works
Planning — Airports
Bridges — Turnpikes — Dams

**Executive Offices: Dillsburg, Pennsylvania**
**Washington, D. C — Pittsburgh, Pa.**
**Dallas, Texas — Paris, France**

---

### FRAZIER-SIMPLEX, INC.
**CONTRACTING & CONSULTING ENGINEERS**

**Furnace Engineering for the Glass and Steel Industries**

436 East Beau Street, WASHINGTON, PA.
U. S. A.

---

### GANNETT FLEMING CORDDRY & CARPENTER, INC.
**Engineers**

Water, Sewage, Roads, Turnpikes
Bridges, Airports, Traffic, Appraisals.

**HARRISBURG, PA.**

**Philadelphia, Pa. — Daytona Beach, Fla.**
**Pittsburgh, Pa. — Medellin, Columbia, S.A.**

---

### LAWRIE & GREEN & ASSOCIATES
**Architectural and Engineering Offices**

**321 N. Front Street**
**Harrisburg, Pennsylvania**

**Ritchie Lawrie, Jr., P.E., Consulting Engineer**

---

### MODJESKI AND MASTERS
**Consulting Engineers**

G. H. Randall — F. M. Masters — J. R. Glass
C. W. Hanson — H. J. Ringel

Design and Supervision of Construction
Inspection and Reports
Bridges, Structures and Foundations

**State St. Bldg. — New Orleans, La.**
**Harrisburg, Pa. — Philadelphia, Pa.**

**CYRUS WM. RICE & CO., INC.**
Consulting Chemical Engineers
Industrial Water and Waste
16 Noble Avenue, Pittsburgh 5, Penna.

**EMERSON VENABLE**
Chemist and Chemical Engineer
Chemical Anaylsis
Research — Development
Trouble Shooting
6111 Fifth Ave., Pittsburgh 32, Pa.

**CORMIT ENGINEERING COMPANY**
Marshal E. Parker, P.E.
CORROSION — CATHODIC PROTECTION
Surveys, Reports, Design, Specifications
Coating Inspection
UNDERGROUND PIPING, WATER TANKS, OFFSHORE PLATFORMS, BARGES, PILING
M & M Building Phone FAirfax 9953
No. 1 Main Street, Houston 2, Texas

**THOMAS E. DUCE ASSOCIATES**
Consulting Engineers
Electrical and Mechanical
Murray Building
1733 S. Brownlee Blvd., Corpus Christi, Tex.

**ENGINEERS TESTING LABORATORY, INC.**
FOUNDATION AND SOIL MECHANICS INVESTIGATIONS
Soil Borings Laboratory Tests
Foundation Analyses Reports
3313 Main Street Houston, Texas

**FORREST and COTTON**
CONSULTING ENGINEERS
Regional Water Supplies
Water and Sewage Works
Industrial Development
Airports — Dams
Appraisals — Reports
803 Praetorian Building Dallas 1, Texas

**FREESE & NICHOLS**
Consulting Engineers
407-410 Danciger Bldg.
Fort Worth 2, Texas

**LLOYD N. ROBINSON, Fel. AIEE**
Consulting Engineer
Registered in N. Y., Washington & Alaska
ELECTRIC POWER
Generation, Transmission, Distribution and Applications
Stuart Building Seattle 1, Wash.

## . . . Supplemental Services . . .

**EHRCO DIE CASTING SERVICE**
Engineering Consultation—Die Castings
Equipment—Installation
Die and Product Design
John R. Ehrbar, P.E., Pres.
303 Main Street, Stamford, Connecticut
Telephone 3-2308

**A PATENTED NON-METALLIC CONDUIT SYSTEM**
For Conveying Hot or Cold Liquids, Vapors
VERSATILE—CORROSION PROOF—RELIABLE
Write
Water-Tight Underground Conduit
Engineers & Fabricators
P.O. Box 12211 Houston 17, Texas
P.O. Box 2181 Atlanta 1, Ga.

**MERCURY ENGINEERING CO.**
Milton V. Wilker, P.E.
- Automatic Machine & Tool Design
- Checking and General Drafting
- Service Manuals to Govt. Specifications
- Catalogs, Exploded Views, Airbrushed Photos, Multilith Plates

10 W. Erie Ave. Rutherford, N. J.
GEneva 8-7307

**BUILDERS ESTIMATING SERVICE**
COST ESTIMATES
QUANTITY SURVEYS
CONSTRUCTION ANALYSIS
MATERIAL PURCHASE LISTS
140 Nassau Street New York 38, N. Y.
Telephone COrtland 7-0322

**EASTERN HEAT TREATING & BRAZING CORP.**
Precision Heat Treatment and Brazing
Induction Heat Heli-Arc-Welding
Hydrogen Atmospheric Cycles
Affiliated Company:
EASTERN METALS INDUSTRIES, INC.
Metallic Bellows & Diaphragm Assemblies
250 West 54 Street, New York 19, N. Y.
Joseph Lipset, P.E., Pres.

**MAX STERN, P.E.**
Consulting Engineer
Specializing in
Metallurgy & Engineering Of
Ferrous & Non-Ferrous Scrap Recovery
149 Broadway, New York 6, N. Y.
Telephone: BEekman 3-5888

**PROFESSIONAL ENGINEERS...**

*List your Card in the Professional Directory. Rates: $6.00 per issue, twelve times basis*

**When prospects need your services . . . you know you are there!**

*Simply mail your business card to*
AMERICAN ENGINEER
1121 15th Street N.W., Wash. 5, D. C.

• *Consult this Directory for Qualified Specialists* •

## *Harold E. Babbitt Retires From U. of Ill.*

Professor Harold E. Babbitt has retired as professor of sanitary engineering at the University of Illinois and moved to Seattle, Washington. The well-known educator is a former vice president of the National Society of Professional Engineers, as well as an active member of many other engineering and public health organizations.

## *Michigan Prexy Visits In Toledo*

Wesley Bintz, president of the Michigan SPE, was the honored guest at the first fall meeting of the Toledo Chapter of the Ohio Society. Paul Harlamert, president of the OSPE, addressed the fifty-nine engineers present, outlining society plans for the coming year.

## *Two Prominent Members Pass Away*

Death has recently claimed two well-known NSPE members—Hyland P. George of Wilmington, Delaware, and Robert Chamberlain of Pittsburgh, Pennsylvania.

Mr. George, a partner in the firm of George & Lynch and a member of the Delaware SPE, was noted for his devotion to the professional interests of the engineer, and he had served as a member of the Delaware Registration Board. Mr. Chamberlain, a design engineer for Mellon-Stuart Co., was also noted for his professional efforts; he had served most recently as the financial secretary of the Pittsburgh Chapter of the PSPE.

(*Continued from page* 27)

ton war," and the newspapers are filled with accounts of long-range rockets, jet bombers which can travel from here to there and return without refueling, atomic weapons of incredible power and magical electronic devices capable of controlling planes and projectiles over great distances. And yet our industrial corporations, which are supposed to produce these miracles and outproduce the miracles of our enemies, continue to report that it is difficult to obtain deferments for young technicians and scientists!

The shortage of engineers is estimated at 40,000, and too few young men are being trained for the technical and scientific work upon which our very survival as a nation may depend. In the meantime, according to Dr. Alan Waterman, director of the National Science Foundation, the Soviet Union has increased its production of young engineers in startling fashion. In an interview in Nation's Business, Doctor Waterman reported that "since the 1917 revolution, the number of institutions of higher education in Russia has increased tenfold and the number of students has increased from a little more than 100,000 to nearly 1,500,000." Of these, Doctor Waterman estimates that more than 40 per cent of the students are being graduated in scientific fields. In this country, the rate is about 30 per cent.

Selective Service, in taking a harsh attitude on deferments for technicians and students in scientific courses, is presumably motivated by a desire to meet frequent criticism that it is unfair to exempt this boy and draft that one. But uninformed attitudes on "fairness" will hardly save us if we fall behind in the weapons race. As is pointed out in a bulletin of the Engineering Manpower Commission, the Army and Air Force recognize the importance of modern weapons and build their recruitment arguments around the importance of knowing how to operate these complex machines.

But, asks the bulletin, "How do the Army and Air Force think radar, guided missiles, range computers, mobile television and teletype systems, jet engines, and so on, come into being and into production? It is only through the work of specialists, with far more than a high-school training, that the armed forces are supplied with these weapons. Yet a single company, which employs a technical force of more than 300 engineers and scientists, faces the loss of 12 per cent of its specialized manpower to induction. The Government assumes no responsibility for replacements, but expects the company to fulfill its contracts."

It is certainly time for Congress to make a thorough survey of this problem and obtain testimony from engineers and industrial leaders as to their need for young men trained in the physical sciences, and their difficulties in securing necessary deferments, which the military seems little inclined to remove. National survival will depend in large degree on the pioneering of trained scientists and perhaps as much on the unhampered activities of thousands of routine engineers and technicians, who do little pioneering, but are trained in the disciplines and routine of modern science.

To many, it seems important that these men should put in twenty-four months of military training like their less gifted contemporaries. Many of the young scientists themselves would welcome this, if only to fend off the criticism which they encounter from uncomprehending neighbors.

However, if Selective Service is to be truly "selective," it will have to see to it that necessary manpower is not denied to modern industry through considerations which have no bearing on the national need. As *The New York Times* put it in a recent editorial: "Can there be a more inexcusable waste of resources than to subject a brilliant young scientist or engineer to military duty unrelated to the technological defense of this country? The concept of equality of sacrifice must yield to the basic security needs of our nation."

## *Redesign Contest Open To Engineers*

Engineers in the design field are being urged to submit entries for the first annual John Woodman Higgins Redesign Award before the closing date of December 31, 1954, according to a statement by Carter C. Higgins, president and general manager of the Worcester Pressed Steel Company, Worcester, Mass., which is sponsoring the competition.

A cash prize of $500 is being offered in the competition, and the award will be made at the spring technical meeting of the Pressed Metal Institute next May. The presentation will be based on the following criteria: successful production by metal stamping for a part previously turned out by another metal-working process; originality of design; and significant cost savings realized in the change-over to the metal stamping technique.

Entries should be sent to and further information is available from: The John Woodman Higgins Redesign Award, Pressed Metal Institute, 2860 East 130th Street, Cleveland 20, Ohio.

**WE ARE SORRY—In the October issue of the *American Engineer*, the biography of J. H. Powers, national director from the District of Columbia Society, contained an error of fact. It was incorrectly stated that Mr. Powers is a bridge engineer with the U. S. Bureau of Mines. The biography should have said that he is a bridge engineer with the U. S. Bureau of Public Roads.**

***Annual Meeting Chairman . . .***

***To list your meeting under "Dates to Remember," send complete information (date, hotel, city) direct to the American Engineer as soon as it is scheduled.***

LEGAL NOTICE

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233).

Of American Engineer published monthly at Baltimore, Maryland, for November, 1954.

1. The names and addresses of the publisher and editor are: Publisher, National Society of Professional Engineers, 1121 15th St., N.W., Washington, D. C.; Editor Kenneth E. Trombley, 1121 15th St., N.W., Washington, D. C.

2. The owner is: National Society of Professional Engineers, 1121 15th St., N.W., Washington, D. C.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relations, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and tri-weekly newspapers only.)

KENNETH E. TROMBLEY, Editor

Sworn to and subscribed before me this 14th day of September, 1954.

(SEAL) MILTON F. LUNCH

(My commission expires September 14, 1957)

***Read the American Engineer every month.***

## Advertisers' Index


Acme Fire Alarm Co., Inc. ..... 8
Adache & Case, Engineers ..... 34
Aerofin Corporation ..... 25
Albright & Friel, Inc. ..... 34
Ark Engineering Company ..... 34
B. H. Backlund & Associates, Inc. .... 33
Michael Baker, Jr., Inc. ..... 34
Elmer S. Barrett Associates ..... 34
Bettenburg, Townsend & Stolte ..... 33
J Paul Bishop & Associates ..... 32
Black & Veatch ..... 33
George W. Brandt, Engineer ..... 34
Roger Barrett Bross ..... 32
Brown & Blauvelt ..... 33
Builders Estimating Service ..... 35
Capitol Engineering Corporation ..... 34
Commonwealth Associates, Inc. ..... 32
Consoer, Townsend and Associates .... 32
Cormit Engineering Company ..... 35
Crescent Engineering Company, Inc. .. 32
Geo. E. Deatherage & Son ..... 25
DeLeuw, Cather & Company ..... 32
Thomas E. Duce Associates ..... 35
M. Ducommun Co. ..... 8
Eastern Heat Treating & Brazing Corp. 35
Ehrco Die Casting Service ..... 35
Engineers Testing Laboratory, Inc. ... 35
Eustis Engineering Company ..... 32
Fay, Spofford & Thorndike ..... 32
Orrin E. Fenn ..... 32
Joseph B. Ficklen III ..... 8
Forrest and Cotton ..... 35
Frazier-Simplex, Inc. ..... 34
Freese & Nichols ..... 35
Gannett, Fleming, Corddry & Carpenter, Inc. ..... 34
General Electric Company ....*Back Cover*
Gustave M. Goldsmith ..... 34
Greer & McClelland ..... 33
Frank E. Harley & Associates ..... 33
C. M. Hathaway ..... 32
The Hinchman Corporation ..... 32
Howard, Needles, Tammen & Bergendoff ..... 33
Kaiser Engineers ..... 32
Kennedy-Riegger Drilling Co., Inc. .. 25
Knappen-Tippetts-Abbett-McCarthy ... 33
Koppers Company, Inc. ..*Inside Front Cover*
Law-Barrow-Agee-Laboratories, Inc. .. 32
Lawrie & Green & Associates ..... 34
Louis J. Lucas ..... 32
Madigan-Hyland ..... 34
Emmet J. McDonald ..... 34
Metcalf & Eddy ..... 32
Mercury Engineering Co. ..... 35
Merritt & Welker ..... 32
Maurice P. Milliken ..... 34
Modjeski and Masters ..... 34
Narva Products, Inc. ..... 3
Niagara Blower Company ..... 7
H. C. Nutting Co. ..... 34
James P. O'Donnell ..... 34
Oklahoma Testing Laboratories ..... 34
Palmer & Baker, Inc. ..... 32
Parsons, Brinckerhoff, Hall & Macdonald ..... 34
Radio Corporation of America ..... 5
Revolvator Company ..... 3
Cyrus Wm. Rice & Co., Inc. ..... 35
Robert and Company Associates ..... 32
Lloyd N. Robinson ..... 35
F. A. Sando ..... 32
Seelye, Stevenson, Value & Knecht .. 34
Singstad & Baillie ..... 34
W. W. Slocum & Co. ..... 33
South Florida Test Service ..... 32
D. B. Steinman ..... 34
Max Stern, P.E. ..... 35
Syska & Hennessey, Inc. ..... 34
Torrelli Freres ..... 5
Toledo Testing Laboratory ..... 34
Emerson Venable ..... 35
Warren-Knight Co. ..... 6
Water-Tight Underground Conduit ... 35
H. P. White Lab. ..... 32
Whitman, Requardt and Associates .. 32
A. W. Williams Inspection Co. ..... 32
Wilson & Company ..... 32
Wisconsin State Highway Com. ..... 25


# *P.E. Becomes Alternate Delegate to the UN*

The United States delegation to the United Nations now includes, for the first time, a registered professional engineer. He is James P. Nash of Austin, Texas, a partner in the firm of Nash and Windfohr which is engaged in the oil and gas business.

Mr. Nash, who is a native of Philadelphia, began his engineering career with the Bureau of Public Roads in Washington, D. C., while he was attending George Washington University. He later worked as a testing engineer at the University of Texas, then as an engineer with the Texas State Highway Department, and as a consultant in the Texas oil fields. Following this he was appointed first deputy oil and gas supervisor of the Railroad Commission of Texas in the North Central Area. He resigned the latter position in 1921 to enter his current partnership with R. F. Windfohr. Mr. Nash is also engaged in the gasoline manufacturing industry and was for a time chairman of the State Advisory Committee to Reduce Flare Gas.

**Mr. Nash, first engineer to serve on U. S. delegation to U.N.**

**NSPE Spring Meeting**—February 18-20, 1955. Hotel Barringer, Charlotte, North Carolina.

**NSPE Annual Meeting**—June 2-4, 1955. Bellevue-Stratford Hotel, Philadelphia, Pennsylvania

## McCoy

(*Continued from page* 20)

that he was an "individual having authority in the interest of the employer to hire, transfer, suspend . . . other employees . . . or effectively to recommend such action . . ."

Upon appeal to the NLRB, the General Counsel of the Board sustained the Field Examiner's finding that McCoy was not entitled to the protection of the Act and "accordingly, further proceedings are not warranted."

The decision is considered a forceful precedent that the job classification, "Chief of Party," in a surveying crew will be construed as supervisory status and that such persons will not be subject to lawful union demands for collective bargaining representation. The decision also suggests that insistence by union representatives that such positions be filled by union members only may justify an unfair labor practice finding against the union.

An additional factor in the case, particularly applicable in Ohio, is the possibility that the door may now be open to institute legal proceedings against the union through the state courts if further attempts are made to force engineers in Chief of Party status into the union. The state Attorney General has ruled that a Chief of Party is not within the contemplation of a state law which provides minimum rates in certain work covering laborers, workmen or mechanics. The opinion also stated that chainmen, rodmen and instrument men are an essential part of an engineering or surveying crew and their duties are professional in nature.

Colonel Charles P. Smith, president of the Ohio Society when the case was initiated, and now National Director from the Ohio Society, explained the ruling to the NSPE Board of Directors at the recent Omaha meeting. OSPE had actively intervened in behalf of McCoy and was instrumental in bringing the matter before the NLRB. NSPE, at OSPE's request, had also evidenced official interest in the test case and had dispatched an observer to Ohio to obtain all pertinent facts in the case and offer assistance. In submitting his report of the outcome of the case to the NSPE Board, Colonel Smith said that the Ohio Society feels that the proceeding has been of considerable value in establishing the status of engineers, particularly those engaged as Chiefs of Party, and that the way was now cleared for aggressive Society action if other coercive tactics were used against engineers in similar situations.

# Member State Societies' Officers and Directors

**Alabama**

*Pres.*, J. A. McLennan, 605 Warwick Rd., Birmingham, Ala.
*Sec.*, Harry Jeffcoat, Jr., 4304 7th Ave., S., Birmingham, Ala.
*Nat. Dir.*, Leonard W. Peterson, 815 Fifth Ave., N., Birmingham, Ala.

**Arizona**

*Pres.*, James E. Hastain, 552 E. Portland St., Phoenix, Arizona.
*Sec.*, Edwin P. Boothroyd, 1841 E. Montecito St., Phoenix, Ariz.
*Nat. Dir.*, W. A. Burg, 108 W. Elm Dr., Phoenix, Ariz.

**Arkansas**

*Pres.*, Louis E. Bona, 115 N. Cedar St., Little Rock, Ark.
*Sec.*, B. Allan Curry, 627 Pyramid Bldg., Little Rock, Ark.
*Nat. Dir.*, H. J. Engstrom, Arkansas Foundry Co., Little Rock, Ark.

**California**

*Pres.*, W. H. T. Holden, 39 Arroyo Parkway, Pasadena 1, Calif.
*Exec. Sec.*, Peter J. Speros, 681 Market St., San Francisco 5, Calif.
*Nat. Dir.*, George E. Zelhart, 2007 Farris, Fresno, Calif.

**Colorado**

*Pres.*, George C. Hahn, 1720 California St., Denver, Colo.
*Sec.*, Gilbert Carter, 3300 S. Bellaire St., Denver, Colo.
*Nat. Dir.*, A. J. Ryan, 1340 Glenarm Place, Denver, Colo.

**Connecticut**

*Pres.*, Edward J. Nesbitt, Bauer Place, Westport, Conn.
*Sec.*, Alfred L. Koup, 221 Nichols Avenue, Stratford, Conn.
*Ex. Sec.*, Llewellyn M. Reed, Box B, Devon, Conn.
*Nat. Dir.*, A. John Macchi, 53 Preston Street, Hartford, Conn.

**Delaware**

*Pres.*, Thomas B. Evans, E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington 98, Del.
*Sec.*, Frank O. Hayes, E. I. du Pont de Nemours & Co., Engineering Dept., Louviers Bldg., Wilmington 98, Del.
*Nat. Dir.*, William A. McWilliams, State Highway Dept., Dover, Del.

**District of Columbia**

*Pres.*, Walter H. McCartha, 2926 S. Buchanan St., Arlington, Va.
*Sec.*, S. S. Podnos, P.O. Box 585, Ben. Franklin Sta., Washington, D. C.
*Nat. Dir.*, Joseph H. Powers, 1750—16th St., N.W., Washington, D. C.

**Florida**

*Pres.*, John F. Reynolds, P. O. Box 4442 Jacksonville, Fla.
*Sec.*, Thomas L. Bransford, C. E. Dept., Univ. of Fla., Gainesville, Fla.
*Nat. Dir.*, E. A. Anderson, 1301 Court House, Miami 32, Fla.

**Georgia**

*Pres.*, John W. Lovell, P. O. Box 1343, Atlanta 1, Ga.
*Sec.*, John D. Powell, Ga. Tech., Box D, Atlanta, Ga.
*Nat. Dir.*, Felix E. De-Golian, Jr., P. O. Box 973, Atlanta, Ga.

**Idaho**

*Pres.*, G. A. Reidesel, 236 Cherry St., Moscow, Idaho.
*Sec.*, W. Purdy Eaton, 1704 Harrison Blvd., Boise, Idaho.
*Nat. Dir.*, Leigh M. Huggins, 1621 Mountain View Drive, Boise, Idaho.

**Illinois**

*Pres.*, C. W. Klassen, State Dept. of Public Health, Springfield, Ill.
*Exec. Sec.*, P. E. Roberts, 631 E. Green St., Champaign, Ill.
*Sec.-Treas.*, A. Douglas Spicer, 138 Payson St., Kewanee, Ill.
*Nat. Dirs.*, Lee I. Osborn, Sherrard, Ill.; George DeMent, Rm. 406, City Hall, Chicago, Ill.

**Indiana**

*Pres.*, J. R. Swanton, 7227 Olcott St., Hammond, Ind.
*Sec.*, R. E. Long, 6220 Nimitz Dr., Indianapolis, Ind.
*Exec. Sec.*, Thelma G. Patterson, 1131 Circle Tower Bldg., Indianapolis, Ind.
*Nat. Dir.*, L. Eugene Easley, 6511 Evanston Ave., Indianapolis, Ind.

**Kansas**

*Chm.*, Walter G. Johnson, 422 Garlinghouse Bldg., Topeka, Kans.
*Sec.-Treas.*, Guy E. Gibson, Jr., 422 Garlinghouse Bldg., Topeka, Kans.
*Nat. Dir.*, Leland Hobson, Kan. State Col. Exp. Sta., Manhattan, Kans.

**Maryland**

*Pres.*, Louis G. Smith, Gas & Elec. Co., Lexington Bldg., Baltimore, Md.
*Sec.*, Albert M. K. Kroft, Tower Bldg., Baltimore 2, Md.
*Nat. Dir.*, Owen W. Turpin, 1004 N. Charles St., Baltimore, Md.

**Massachusetts**

*Pres.*, Frederic S. Bacon, Jr., P. O. Box 58, Winchester, Mass.
*Sec.*, Fred A. Sawyer, Room 805, 79 Milk St., Boston 9, Mass.
*Nat. Dirs.*, Edwin R. Gardner, 4 Walnut Rd., Swampscott, Mass.; J. Frederick Way, City Hall, Lowell, Mass.

**Michigan**

*Pres.*, Wesley Bintz, P. O. Box 402, Lansing, Mich.
*Sec.*, Fred L. Hendrick, P. O. Box 402, Lansing, Mich.
*Nat. Dirs.*, Paul S. Calkins, 23230 Power Rd., Farmington, Mich.; Otto Hall, 1414 Sunnyside, Lansing, Mich.; L. J. Richards, 1106 W. Sugnet, Midland, Mich.

**Minnesota**

*Pres.*, J. J. Ryan, 52 N. Mississippi River Blvd., St. Paul, Minn.
*Exec. Sec.*, Hal E. McWethy, 1000 Guardian Bldg., St. Paul, Minn.
*Nat. Dirs.*, Hibbert Hill, 15 S. 5th St., Minneapolis, Minn.; N. T. Rykken, 915 Grandview Ave., Duluth, Minn.

**Missouri**

*Pres.*, J. W. Hubler, Washington University, St. Louis 5, Mo.
*Exec. Sec.*, Paul N. Doll, P. O. Box 365, Jefferson City, Mo.
*Sec.*, H. L. Ferguson, Missouri Power & Light Co., Kirksville, Mo.
*Nat. Dirs.*, Prof. Joe Butler, Missouri School of Mines, Rolla, Mo.; Harold J. Bruegging, 106 W. High St., Jefferson City, Mo.; A. C. Kirkwood, Wirthman Bldg., 31 & Troost, Kansas City, Mo.

**Nebraska**

*Pres.*, Charles W. Durham, 2902 Harney, Omaha, Nebr.
*Sec.*, A. R. Homan, 5970 N. 33rd St., Omaha, Nebr.
*Nat. Dir.*, B. H. Backlund, 4924 Poppleton, Omaha, Nebr.

**Nevada**

*Pres.*, Oscar J. Scherer, 300 Boston Ave., Las Vegas, Nev.
*Sec.*, Thomas A. Turner, P. O. Box 1, Henderson, Nev.
*Nat. Dir.*, H. B. Blodgett, Box 9025, University Sta., Reno, Nev.

**New Jersey**

*Pres.*, Charles Stillman, Old Stirling Road, R. D. 2, Plainfield, N. J.
*Sec.-Treas.*, Eugene H. Koenig, 518 S. Forest Dr., West Englewood, N. J.
*Exec. Dir.*, Charles J. Dodge, 86 E. State St., Trenton, N. J.
*Nat. Dirs.*, Edward R. Boate, 404 Everson Place, Westfield, N. J.; Frank F. Hohnholt, 37 Oak St., Tenafly, N. J.; W. Earl Christian, Netherwood Ave., Box 215, R.D. 24, New Brunswick, N. J.; Wm. S. Dean, 38 Oakley Ave., Summit, N. J.

**New Mexico**

*Pres.*, T. E. McCarty, Box 1311, Albuquerque, N. Mex.
*Sec.*, T. T. Castonguay, Box 4053, Albuquerque, N. Mex.
*Nat. Dir.*, Walter K. Wagner, 412 Lafayette Pl., Albuquerque, N. Mex.

**New York**

*Pres.*, Thomas M. Linville, General Electric Co., P. O. Box 1088, Schenectady, N. Y.
*Exec. Sec.*, Harold Funk, 1941 Grand Central Terminal Bldg., New York, N. Y.
*Nat. Dirs.*, C. Arnold Dutton, 75 W. Mohawk St., Buffalo 2, New York; Lewis J. Sforzini, 3682 St. Paul Blvd., Rochester 12, N. Y.

**North Carolina**

*Pres.*, E. C. Hubbard, P. O. Box 2091, Raleigh, N. C.
*Sec.*, Robert B. Cochran, Jr., P. O. Box 5131, Raleigh, N. C.
*Nat. Dir.*, Robert B. Rice, P. O. Box 5131, Raleigh, N. C.

**North Dakota**

*Pres.*, Albert W. Anderson, State College Sta., Fargo, N. Dak.
*Sec.-Treas.*, Joseph Kirby, 827—13th St., Bismarck, N. D.
*Nat. Dir.*, R. H. Myhra, 1221 Victory Pl., Highland Acres, Bismarck, N. Dak.

**Ohio**

*Pres.*, Paul A. Harlamert, 1530 Guild Hall Bldg., Cleveland 15, Ohio.
*Exec. Sec.*, Lloyd A. Chacey, 5 E. Long St., Columbus, Ohio.
*Nat. Dirs.*, Raymond A. Freese, 1516 Keith Bldg., Cleveland 15, Ohio; Ronald A. Gordon, Clinton Construction Co., Wilmington, Ohio; Charles P. Smith, 3789 Olentongy Blvd., Columbus, Ohio.

**Oklahoma**

*Pres.*, Floyd Zook, P. O. Box 627, Chickasha, Okla.
*Sec.-Treas.*, Harold L. Pickens, P. O. Box 1104, Oklahoma City, Okla.
*Exec. Sec.*, C. S. Worley, 410 Commerce Exchange Bldg., Oklahoma City, Okla.
*Nat. Dirs.*, Clark A. Dunn, A & M College, Stillwater, Okla.; G. W. McCullough, 1815 Johnston Ave., Bartlesville, Okla.

**Pennsylvania**

*Pres.*, Robert Miller, 405 N. Lehigh St., Tamaqua, Pa.
*Exec. Sec.*, John T. West, Jr., 228 N. Second St., Harrisburg, Pa.
*Nat. Dirs.*, Robert Miller, 405 N. Lehigh Street, Tamaqua, Pa.; Ezra K. Nicholson, 1618 Latimer St., Philadelphia, Pa.; Donald C. Peters, 210 E. Parkway, Pittsburgh, Pa.; Allan H. Kidder, 2301 Market Street, Philadelphia 3, Pa.

**Puerto Rico**

*Pres.*, Alberto Hernandez, P. O. Box 1244, San Juan, Puerto Rico.
*Sec.*, Jorge Rivera Valentin, Box 397, Rio Piedras, Puerto Rico.
*Nat. Dir.*, Alberto Hernandez, P. O. Box 1244, San Juan, Puerto Rico.

**Rhode Island**

*Pres.*, Henry Campbell, 26 Cherry Road, Kingston, R. I.
*Sec.*, Howard W. Holmes, 98 Burlington St., Providence 6, R. I.
*Nat. Dir.*, Francis W. Cullinan, 90 Pinehurst Avenue, Providence, R. I.

**South Carolina**

*Pres.*, Chester E. Hatch, P. O. Box 960, Greenville, S. C.
*Sec.-Treas.*, Milton Lite, 109 Twinbrook Dr., Greenville, S. C.
*Nat. Dir.*, R. K. Rouse, P. O. Box 3731, Greenville, S. C.

**Tennessee**

*Pres.*, A. Carter Crymble, c/o Tennessee Eastman Co., Kingsport, Tenn.
*Sec.*, Glen W. Moorehouse, c/o Tennessee Eastman Co., Kingsport, Tenn.
*Nat. Dir.*, Warner Howe, 76 Porter Bldg., Memphis, Tenn.

**Texas**

*Pres.*, Frank T. Drought, P. O. Box 8147, Laurel Hgts., San Antonio 12, Tex.
*Exec. Sec.*, Henry Harkleroad, 403 Nash Bldg., Austin, Tex.
*Nat. Dir.*, Noah E. Hull, P. O. Box 2545, Houston, Tex.

**Utah**

*Pres.*, Wayne D. Turpin, 1540 Westmoreland Dr., Salt Lake City, Utah.
*Sec.*, John S. Duder, 1842 Michigan Ave., Salt Lake City, Utah.
*Nat. Dir.*, Charles M. Ware, 2080 Yale Ave., Salt Lake City, Utah.

**Virginia**

*Pres.*, James J. Corbalis, Jr., Fairfax County Court House, Fairfax, Va.
*Sec.-Treas.*, Wm. T. St. Clair, 601 E. Franklin St., Richmond, Va.
*Nat. Dir.*, John B. McGaughy, 21st at Llewellyn Ave., Norfolk, Va.

**Washington**

*Pres.*, Kendall Wood, 228 Hutton Bldg., Spokane, Wash.
*Exec. Sec.*, Ed. Smith, Organization Service Bureau, American Building, Seattle 4, Wash.
*Nat. Dir.*, L. R. Durkee, 511 New World Life Bldg., Seattle 4, Wash.

**West Virginia**

*Pres.*, George W. McAlpin, 1584 Virginia St., East Charleston, W. Va.
*Exec. Sec.*, Ross B. Johnston, P. O. Box 249, Charleston, W. Va.
*Nat. Dirs.*, Leslie C. Gates, P.O. Box 672, Beckley, W. Va.; Harry G. Kennedy, 1307 Kanawha Valley Bldg., Charleston, W. Va.

**Wisconsin**

*Pres.*, George Steinmetz, 2134 Fox Ave., Madison, Wisc.
*Sec.*, Eldon C. Wagner, 2318 Rowley Ave., Madison, Wisc.
*Nat. Dirs.*, Edwin J. Kallevang, Wisc. Power & Light Co., Madison, Wisc.; Harold Trester, 50 State St., Oshkosh, Wisc.

# - - - NEW PROCESSES - - -

## Diamond Prospecting

Atomic instruments are now pointing the way to a new and exciting era of geologic exploration, with the possibility of finding hidden sources of diamonds.

It is known that diamonds originate in "kimberlite pipes," vertical funnel-shaped bodies of rock that once were deep within the earth's crust. Kimberlite is bluish in color and the diamonds are found as crystals scattered throughout the blue rock. The diameter of the pipes can be as large as 2300 feet with a depth as great as 3600 feet.

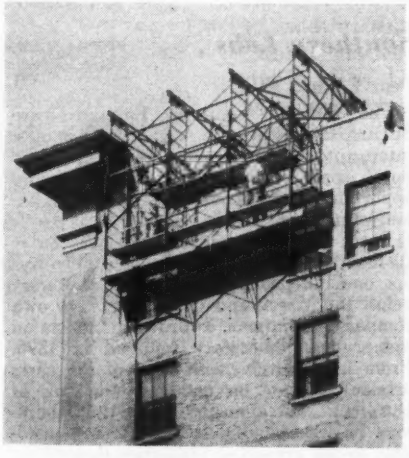
Now it is possible for Scintillometer aerial surveys to locate these pipes. The Scintillometer is an extremely sensitive gamma ray detector, gamma rays being the most penetrating of the radioactive rays.

For months, Radiac Company, Inc., 489 Fifth Avenue, New York, leading suppliers of atomic and geophysical prospecting instruments has been receiving inquiries from South Africa about airborne Geiger and Scintillation Counters. These inquiries have set prospectors and research people on a new and highly promising trail in their technique of prospecting for diamonds.

Knowing that there is a normal radioactivity background all over the world caused by the cosmic rays and a minute amount of radioactivity coming from the ground, the very significant drop in the radioactivity background in certain areas presented a peculiar phenomenon. The most plausible theory pointed to the elusive diamond pipes. An airborne Scintillometer survey would show by the rise and fall of radioactivity where these kimberlite pipes exist.

A plane equipped with an airborne Scintillometer would fly a grid pattern fifty to two hundred feet above the ground. The gamma radiation picked up by the Scintillometer would be continuously recorded on the chart. If the chart shows a sudden drop in the radioactive level, then returns to normal, further investigation in the area should definitely be made — on foot with a Geiger or Scintillation Counter. This would pinpoint the area of low radioactivity. By taking readings at intervals of fifty feet, the outline of the kimberlite pipe could be mapped out.

The airborne Scintillometer survey only indicates the possibility of the pipe. The evidence should be correlated with the results of a magnetometer survey. If the evidence of both surveys are corroborative, the chances are that a kimberlite pipe exists in that area.



## Unique Scaffolding

Hanging a scaffold over the parapet of the Hanna Building Annex in Cleveland rather than building the scaffold up nine stories from the street was the unique solution worked out to replace 12,000 brick, enough for a three-bedroom house, on each side in about five weeks. The new rig will save about $1500 and eliminate 90% of the scaffolding ordinarily needed. The problem was to remove and replace the brick on a parapet where mortar had disintegrated causing the parapet to lean inward. The scaffold consisted of a 21′ x 14′ tower made up of Waco Steel scaffolding on the roof with 22′ outriggers cantilevered out over the parapet. From the outriggers were hung 30″ wide Waco ladder frames held together with toggle pins and spaced with pivoted cross braces. These frames, which extended 19½′ down, were planked and the sides and back were enclosed with chicken wire. Counterbalance for the hanging part of the scaffold was 4000# of sand bags placed on the scaffold on the roof 15′ back from the parapet. The entire unit rolled on casters over boards laid on the roof.

The *Professional Directory* lists an *Engineering Specialist* who can help you with your specific problem.

## Steel Testing

By determining the load that can be applied repeatedly to steel samples without causing failure, detailed information on how to build and fabricate greater safety into steel conveyances and structures will be available from the new Research Center now under construction by U.S. Steel near Pittsburgh. Such research into the endurance limits of steels makes it possible for engineers to design within safe limits without excessive weight or waste.

One of the machines now being used for such research is a magnetic fatigue tester. It consists of two rubber-padded supports upon which the test piece is placed, an electro-magnet located at each end of the tester, pick-up coils located at the center of the sample, a power unit with controls, a stroboscopic light, and a micro-comparator to measure vibration amplitudes.

Samples of steel from 24 to 36 inches in length and up to 2 inches thick and 5 inches wide can be subjected to controlled vibrations. Each piece has a natural frequency, depending on dimensions, at which it will vibrate. A piece is placed on the rubber-padded supports and the end magnets are positioned under the ends of the sample. An alternating current is then supplied to the end magnets to set the steel vibrating, much after the fashion of a tuning fork. The center pick-up coils translate the motion into electrical impulses which feed back to the power unit at the natural frequency of the sample. These impulses control the pulsations of electricity from the power unit to the end magnets so they match the frequency of the specimen and keep it vibrating. The amplitude of the sample's vibrations depends on the intensity of the current supplied to the end magnets.

When a crack develops in the test specimen, its natural vibrational frequency changes. This change upsets the rhythm of impulses from the pick-up coils to the power unit and the machine automatically stops. By use of the micro-comparator, the research scientist can easily measure the amplitude of the vibration or the amount of bending. The stroboscopic light is used to establish the location of very small fatigue cracks.

## Letters

(*Continued from page 5*)

I have always believed in a merit system for wages; pay for what the work is worth. I personally don't believe I could work under union domination. But, of course, there are all kinds of temperaments and if that type of working condition is agreeable, and wages are the only consideration, then a person should join a union because that is where the highest wages are to be found, no matter what the trade.

But somewhere along the pathway of an ongoing civilization the trend must be stopped, and at least brought into a balance; pay for work for what it is worth, whether brain or brawn.

LEONARD A. GIBSON, P.E.
Ft. Worth 5, Texas.

**► Reader Gibson's letter is typical of many received in answer to Mr. White's request for advice.—*Editor.***

## *Both Sides . . .*

Dear Editor:

You are to be complimented for your effort to present both sides of a controversy. I refer to two items in your October number: (a) the article by Miss Malvina Lindsay in PROFESSIONAL POSTSCRIPTS and (b) the letter by Professor Byron E. Short, P.E., on page 40 of the same number.

Miss Lindsay's arguments are well taken. Surely no one should expect us to graduate engineers not properly exposed to the fundamental humanities even though the relative advantages of arts as against scientific education remain in dispute. Neither should the student, regardless of curriculum, be denied the opportunity to secure a basic training in the mathematics and physical sciences which largely affect our lives.

This is not what many men who call themselves liberals actually advocate. Professor Short is correctly exercised about the present demand to allocate a certain definite percentage of the engineering student's time to subjects the liberals approve, with a consequent reduction of time spent on technical subjects. As if technical subjects would injure the student, these subjects are very carefully prescribed and the list from which the non-technical electives may be chosen is as rigidly prescribed.

From this it seems that those who call themselves "liberal" are actually the opposite. If one does not agree with the "liberal's" concept of liberality, he is not a liberal.

With no intention to prolong the controversy, I must state my sincere approval of the sentiments expressed by Professor Short in the last two paragraphs of his valued letter. I am quite sure that he does not wish to circumvent the desire of Junior's sister to major in history. His only wish is to allow Junior to acquire the basis for an engineering education, should he choose to prepare for this profession and to secure a good engineering education in such an event. I am sure that such a desire is in true accord with the principles of freedom of choice.

CARROLL D. BILLMYER, P.E.,
Kingston, R. I.

## *No Shortage . . .*

Dear Editor:

The voice of the professional engineer is heard through the NSPE.

What means have you taken to counter the publicity spread by engineering schools, industry and government agencies relative to the shortage of engineers?

Those in this profession know that no shortage exists!

The NSPE should now act to stop all false statements about the so-called shortage or is complacency the word?

ANTHONY G. BALLY, P.E.,
Poughkeepsie, N. Y.

## *Southern Labs . . .*

Dear Editor:

The article, "Southern Engineers are Staying Home!" in the August issue is most interesting, indeed, to one who left the deep South some years ago to find engineering opportunity in the not-so-deep South. Makes me want to go back!

But I must question the statement on p. 20 that "a scant dozen years ago there was not one independent consulting laboratory below the Mason and Dixon line." My own company, Penniman & Browne, Inc., is an independent laboratory founded in 1896. From its research came some of the early original patents on catalytic cracking of petroleum. For almost 60 years this laboratory has contributed steadily and dependably to the growth of industries throughout the Middle Atlantic Seaboard. Or how about Froehling & Robertson, in Richmond, founded in 1881? Or Shilstone Laboratories in New Orleans, being operated now by the second generation of Shilstones? Or Barrow-Agee Laboratories in Memphis, or South Florida Test Service in Miami? These are certainly more than a dozen years old, and all below the Mason-Dixon Line.

No, it was not the lack of research facilities that held the South back.

B. T. DEAN, P.E.,
Baltimore, Md.

**► The AMERICAN ENGINEER regrets the oversight which led to the statement challenged by Mr. Dean. In preparing the article on southern engineering, we consulted numerous primary and secondary sources in addition to many companies and civic groups in the South. Unfortunately we were led astray by an "authoritative" statement in one of our reference sources whose authors are generally regarded as among the most accurate and reliable in the country. Now we—and they—must stand corrected.—*Editor.***

## *Public vs. Private . . .*

Dear Editor:

In the letter "Educational Systems . . ." by Jerome Goodman, E.I.T., Brooklyn, N. Y., which appeared in the August issue of the AMERICAN ENGINEER, Mr. Goodman stated, "It is in the public colleges that the hope of intellectual America lies. Here we get quality, not quantity, in the engineers graduated." Assuming that "public" means "tax-supported" I respectfully submit the following statistics which came to me by way of a form letter sent last June to all alumni by F. L. Wilkinson, Jr., President, Rose Polytechnic Institute, an independent engineering college in Indiana. I will quote directly from the letter, as follows:

"Just prior to mailing this material to you, we received word from the A. N. Marquis Company, publishers of *Who's Who in America*, giving us the results of a survey made by them of the college attendance of those whose names appear in *Who's Who in America*.

"The results of this survey were of great interest to me and I am sure they will be to you. Here are some of the facts the survey reveals:

"Out of a total of 33,778 names included in *Who's Who* listed as attending a college or university, 21,835 were from independent institutions and 11,943 from tax-supported colleges or universities . . . "

It is probable that there is a tendency for certain prominent alumni of any school to avoid having their names listed in such a publication. I would suspect that the independent colleges campaign actively to get their qualified alumni to submit biographical information required for listing with the object of using the statistical results as propaganda. Even with the foregoing in mind, a trend is strongly indicated.

Listing in *Who's Who* may not be directly correlated with intellectuality; the A. N. Marquis Company's statistics are interesting, however, in the light of the implications of Mr. Goodman's statement. Similar figures based strictly on the publication *Who's Who in Engineering* might prove to be equally as interesting, subject to the same reservations as noted above. I am curious to see the statistics Mr. Goodman uses as a basis for his rather broad statement.

I fail to see the connection between the fact that Mr. Goodman taught a course at Teachers College, Columbia University titled "Basic Electronics and Psychoacoustics as Applied to Audiology and Speech" and the rest of his letter. One gets the impression from the context of his letter that Mr. Goodman is attempting to lend validity to his highly controversial views of progressive education by using authority as a good in its own right. I feel that both General Sturgis and Mr. Goodman are guilty of basing their conclusions concerning progressive education upon inconclusive information.

L. DUANE PYLE, E.I.T.,
Lafayette, Ind.


### *Your '55 Vacation Should Include Philadelphia*

**"Plan your 1955 vacation so that you can be in Philadelphia from June 2nd to June 4th."—That is the advice being given to all NSPE members by the engineers of the Philadelphia Chapter, PSPE, who are already working hard on preliminary plans for NSPE's 1955 Annual Meeting scheduled for their city at that time.**

**"Here is one of those rare occasions," they remind you, "when you can mix your business and your family's pleasure—visit some of the country's oldest historic shrines; see the country's new steel center, 'Delaware Valley, U.S.A.'; and, after the NSPE meeting is concluded, travel on for a shore vacation at one of the famous South Jersey beaches, only an hour or two away by car."**

**That is very good advice indeed. So keep those dates in mind and plan to BE IN PHILADELPHIA, JUNE 2-4, 1955.**

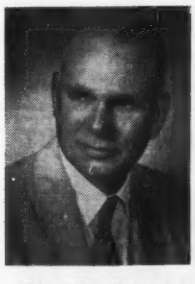


The *Professional Directory* lists of *Engineering Specialist* who can he you with your specific problem.

# Strictly Business

***Personalities . . .*** The appointment of STANLEY L. HAINES as director of industrial engineering for the AMERICAN LOCOMOTIVE COMPANY, Schenectady, has been announced by W. H. ALLISON, manager of manufacturing. . . . The appointments of RAYMOND S. BRIGGS and RICHARD W. LYKE of HOOKER ELECTROCHEMICAL COMPANY to the positions of assistant chief engineer and plant engineer respectively have been made known by BJARNE KLAUSSEN, executive vice president. . . . JAMES H. POTTER, Binghamton, N. Y., has been promoted to development engineer in the Endicott Engineering Laboratory of INTERNATIONAL BUSINESS MACHINES CORPORATION. . . . JOSEPH R. SCHAEFFER has been appointed chief engineer of the BLAW-KNOX COMPANY'S Construction Equipment Department. . . . The appointment of DR. RAYMOND C. JOHNSON as an associate on the technical staff of the LUMMUS COMPANY, New York, N. Y., has been announced by W. W. KRAFT, company vice president. . . . WILLARD HAAS has been named technical manager of hose for THE B. F. GOODRICH COMPANY'S Industrial Products Division, Akron, O. . . . CALVIN L. DICKINSON has been named director of engineering for the AMERICAN POTASH & CHEMICAL CORPORATION'S Trona, Calif., operation.

Mr. Haines



Mr. Shackford

ROBERT H. DAVIES has been named vice president in charge of engineering for THE PARKER APPLIANCE COMPANY, Cleveland, and its subsidiaries. . . . CHARLES C. SHACKFORD has been named product engineer of the Electrical Wire Division of the JOHN A. ROEBLING'S SONS CORPORATION, Trenton, N. J. . . . HARRY H. EDWARDS, president of LAKELAND ENGINEERING ASSOCIATES, Lakeland, Fla., has announced the appointment of FELIX J. LOSSON, JR., to the post of manager of the Mining Division. . . . HAROLD WRIGLEY has been appointed works manager and CHARLES S. BASNEY, new products manager of the BARRY CORPORATION, Watertown, Mass. . . . JOSEPH J. SWIGART of Pittsburgh, Pa., has been named general manager of VITRO RARE METALS COMPANY, Canonsburg, Pa., a division of VITRO CORPORATION OF AMERICA. He succeeds FRANKLIN H. BIVINS of New York who has become assistant to the executive vice president of the corporation. . . . A. B. DRASTRUP has been elected president of A. M. BYERS COMPANY, Pittsburgh. . . . Election of CLYDE C. WILLIAMS as vice president of sales of CHRYSLER CORPORATION'S Marine and Industrial Engine Division has been announced by R. T. KELLER, president of the division and vice president of the corporation. . . . SPEER CARBON CO., St. Marys, Pa., has announced the appointment of DR. ROBERT L. WOMER as vice president in charge of research and development.

►

***Operational Expansion . . .*** KAIGHIN & HUGHES, INC., Toledo, O., piping and mechanical contractors, have organized an Industrial Wastes Division with EDMUND B. BESSELIEVRE as its manager. . . . Initiation of a major new guided missile activity has been disclosed with the announcement that three expert missile scientists have joined THE RAMO-WOOLDRIDGE CORPORATION, Los Angeles affiliate of THOMPSON PRODUCTS, INC., of Cleveland, O. The appointees are: DR. LOUIS G. DUNN, who will be associate director of the new Guided Missile Research Division; DR. MILTON U. CLAUSER, director, Aeronautics and Structures Staff; and DR. JAMES C. FLETCHER, director, Guidance and Control Staff. DR. SIMON RAMO, executive vice president of the company, will also serve as director of the new division. . . . Plans for the construction of a new plant in LaVerne, Calif., have been announced by ADMIRAL ALAN G. KIRK, chairman of the board of the MERCAST CORPORATION, New York. MERCAST is an affiliate of the ATLAS CORPORATION of which FLOYD ODLUM is president. . . . The new $3-million WELLMAN COMBING COMPANY plant in Johnsonville, S. C., has now gone into full production. The plant was designed by LOCKWOOD GREENE ENGINEERS, INC., of New York, Boston, and Spartanburg, S. C. The builder was DANIEL CONSTRUCTION COMPANY of Greenville, S. C., and Birmingham, Ala.

Mr. Besselievre

►

***Reorganizations and Changes . . .*** H. W. HEISTERKAMP and R. J. DE FASSELLE, the two principals in the consulting engineering firm of SPENGLER ASSOCIATES, Cleveland, O., have announced that they are now doing business under the firm name of HEISTERKAMP & DE FASSELLE. . . . B-I-F INDUSTRIES, INC., of Providence, R. I., announces that its West Coast affiliate, BUILDERS-PACIFIC, INC., has changed its name to B-I-F PACIFIC, INC., West Coast Division of B-I-F INDUSTRIES, INC. LEON HOYT CHAMBERLAIN is president and sales manager of the division, which has offices in San Francisco, Los Angeles, and Phoenix. . . . Formal affiliation with the West Coast Division of the H AND B AMERICAN MACHINE CO., INC., Culver City, Calif., has been announced by KARP METAL PRODUCTS COMPANY of Brooklyn, N. Y. . . . The FRANKI FOUNDATION COMPANY, foundation contractors, has moved its headquarters from Pittsburgh, Pa., to 103 Park Avenue, New York 17, N. Y., but will continue to maintain a branch office in Pittsburgh. . . . SALKOVER METAL PROCESSING OF ILLINOIS, INC., founded in Chicago in 1941, announces that it has moved to its new plant at 2550 Edgington Ave., Franklin Park, Ill. . . . An affiliation of PANELLIT, INC., Skokie, Ill., with TALLER & COOPER, INC., of Brooklyn, N. Y., has been announced by ALBERT F. SPERRY and BENJAMIN COOPER, presidents of the respective companies.

►

***Ownership Transfers . . .*** FEDERAL PACIFIC ELECTRIC COMPANY, Newark, N. J., has announced the acquisition of the GARDNER ELECTRIC MANUFACTURING COMPANY, San Francisco. . . . WESTINGHOUSE ELECTRIC CORPORATION has purchased all the capital stock of the SCHNEIDER MANUFACTURING CORPORATION of Muncie, Ind., according to GWILYM A. PRICE, Westinghouse president.

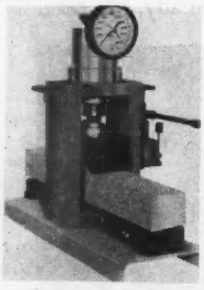
# What's New

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 1 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State.....

## PORTABLE TESTING MACHINE — Item 1



A new Portable Testing Machine announced by Soiltest, Inc. makes possible rapid on-the-job testing of concrete and similar materials with laboratory accuracy. The 200,000 pound capacity Portable Testing Machine can be used in field and laboratory testing of concrete cylinders and beams and other construction materials. The tester is entirely self-contained and no electrical or pressure connectors are required.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 2 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State.....

## GLAS-KRAFT SOIL-CONTACT-MEMBRANE — Item 2

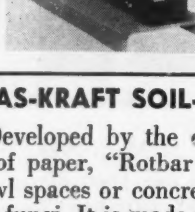
Developed by the originators of glass-fiber, reinforced waterproof paper, "Rotbar No. 2" is a practical paper for use under crawl spaces or concrete slabs. Has high resistance to rot, mildew and fungi. It is made from two sheets of chemically-treated paper which are bonded together under heat and pressure with a waterproof laminant. Into this laminant are swirled miles of tough, strong, continuous glass fibers. According to the manufacturer, Glas-Kraft, Inc., Lonsdale, R. I., this gives Rotbar all-directional strength, prevents tear and reduces puncture. The product, an effective moisture barrier, is available in widths up to 25 feet, with approved asphaltic laps.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 3 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State.....

## POSITIVE LOCKNUT — Item 3




Allmetal Screw Products Co. Inc., announces a new Locknut described as a unitary, solid metal piece, slotted cone shape on one end, splined cylinder on other, designed to be inserted in a countersunk hole. Nut is partially or completely seated in material and is held in position by force fitted splines. After bolt is inserted locking action is effected by the pressure of the section threads forced against the bolt by the interference of the countersinks. Available in all metals and in all standard thread specifications.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 4 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State.....

## METALLIC CALKING-GLAZING COMPOUND — Item 4

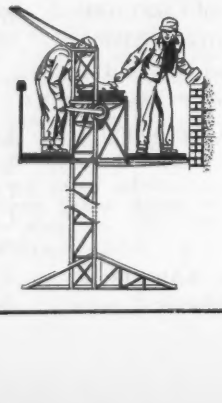
A metallic calking compound, "ALUMILASTIC," employing pure Alcoa Albron aluminum pigment in a specially processed slow-drying vegetable oil vehicle that forms a tough, elastic metallic film, is announced by The Parr Paint & Color Company, Cleveland, Ohio. Recommended for a variety of uses in building projects and heavy construction where a tough, elastic seal is required, it affords watertight joints around skylights, ventilators, stacks, window frames and door frames. "ALUMILASTIC" is said to be excellent for exterior service with aluminum, steel and stainless steel construction. It may also be employed to provide insulation against galvanic corrosion between dissimilar metals.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 5 to:

Name .....
(Title)
Company .....
Street .....
City and Zone ..... State.....

## ADJUSTABLE MASONRY SCAFFOLDING — Item 5



An adjustable steel scaffolding, manufactured by the Morgen Manufacturing Co., Yankton, South Dakota, is reported to be effecting 15 to 25% savings on masonry wall construction costs. The scaffolding eliminates stooping, reaching and moving from scaffold to scaffold and keeps masons at proper work level at all times. The scaffold consists of a completely safe, self-elevating, triple-platform that assembles and sets in place at the 3-foot wall level quickly and easily. It affords continuous story-high building without rescaffolding.

**This column describes new products of general interest to professional engineers. For further information, fill in the coupon provided and mail to the AMERICAN ENGINEER.**

## OZALID INTRODUCES WHITEPRINTER — Item 6

A new, high capacity whiteprint machine is announced by Ozalid, A Division of General Aniline & Film Corp., Johnson City, N. Y. Called the Ozalid Model 800, the new machine reproduces translucent engineering drawings and business forms up to 42" wide at speeds up to 30 feet per minute. The compact 800 offers front or rear delivery, is continuous in operation—prints go directly from feedboard through exposure and development without having to be rehandled. Has an electronic speed drive and thermostat controlled development section.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 6 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State.....

## CLAD ALUMINUM TUBING — Item 7

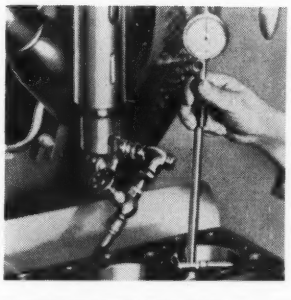
Introduction of clad aluminum tubing—a new type of irrigation pipe designed for use where the water is highly corrosive—is announced by Kaiser Aluminum & Chemical Corp. The continuous weld method is said to give the clad aluminum pipe the additional advantage of higher yield and bursting strengths and greater crush resistance. The cladding is a thin lining which is integrally bonded in the rolling process to the stronger aluminum alloy sheet from which the tubing is made. Cladding gives greatly increased resistance to corrosion from chemical elements that may be present in water. Available in diameters from 2 through 5 inches and 40 feet in length.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 7 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State.....

## SMALL BORE GAGE — Item 8



The George Scherr Company announces a line of Self-Centering Dial Small Bore Gages for checking bores rapidly for size, taper, oval form and bell-mouth at any point and depth. The instrument is centered automatically inside the bore by means of a spring-loaded bridge, the cradle-shaped ends of which form an equal sided triangle with the feeler point. Measurements are taken by simply inserting the shaft into the bore, rocking it around and reading the dial.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 8 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State.....

## LOW COST "DRAIN-O-TANK" — Item 9

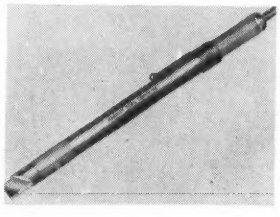
A new, low cost valve for recharging waterlogged compression tanks fast, was announced recently by Bell & Gossett Company, Morton Grove, Ill. The design of the valve is so unique and simple that its operation is said to be foolproof. An exclusive feature of the valve design makes it virtually impossible to waterlog an expansion tank except by loss of air from a leaky tank or normal air absorption into the water itself. Valve is ½" size with standard ¾" hose connection for a drain.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 9 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State.....

## FOR MARKING AND CUTTING — Item 10



A combination tool, the No. 127 MARKUTTER, recently introduced by the Marbut Tool Co., Pittsburgh, Pa., includes a standard drawing crayon and a precision cutting blade in its sturdy, lightweight, tubular aluminum body. Both crayon and blade are retractable. Cutting blade is used to remove unwanted ink lines from drawings and tracings, and for cutting out paper and cardboard patterns and models. Crayon can be used to identify rolls of blueprints, or prints filed face-down to prevent curling, as well as for rough layout work.

**AMERICAN ENGINEER** Nov., 1954
1121 FIFTEENTH ST., N.W., WASHINGTON 5, D. C.

Please send information on Item 10 to:

Name ..... (Title)
Company .....
Street .....
City and Zone ..... State.....

# What General Electric people are doing . . .

## QUIET TUBE

The U.S. Navy Bureau of Ships is interested in anything which would extend the range of its early-warning radar stations. Since a target is identified by distinguishing a pip on a radar screen from smaller, noise-generated irregularities, any reduction in noise would make the pip more discernible.

Our Research Laboratory has been working under Navy sponsorship for the past few years to design a strong, low-noise tube for microwave applications. Such a tube has now been developed, in collaboration with our Tube Department. In this tube noise is reduced by keeping the electrodes extremely close together, thus reducing the transit time the electrons require to travel from cathode to grid. The shorter the transit time, the smaller the noise factor.

The new tube, designated GL-6299, is not a single-frequency device, although it was designed for use at microwave frequencies. In fact, it exhibits improved performance throughout the radio and audio-frequency ranges. For usefulness over a large frequency range, it has been made adaptable for use in circuits of the cavity, parallel-line, or lumped-constant type. Despite its small size, it operates at currents and voltages comparable to those of conventional receiving tubes. It is being marketed by our Tube Department in Schenectady.

## MAGNETIC SIGNATURES

Determining the magnetic characteristics of a metal can be a long and tedious business. The usual method requires long calculation, using data gathered from sensitive ballistic galvanometers. But that's been changed.

Our General Engineering Laboratory in Schenectady has developed a device called a D-c Recording Hysteresigraph, which eliminates the hours of laborious measurement and calculation. It traces the magnetic "signature" of a metal directly onto a scaled chart in a matter of minutes. It is able to do this with the use of two fluxmeters, which integrate the flux voltage continuously.

The new instrument is expected to be a valuable quality-control device for manufacturers of special steel. Laboratories can also make use of it in obtaining accurate data on commercially-available materials and in the development of new alloys.

## LIFE PREDICTER

The conventional way of finding out how long a fluorescent lamp will burn before it fails is to let it burn until it fails. But now the engineers of our Lamp Division at Nela Park, Cleveland, can make a pretty good prediction beforehand.

Other things being equal, they find, the life of a fluorescent lamp is proportional to the amount of emission coating on the cathode. By weighing this emission coating, the life of the lamp can be estimated.

Our engineers at Nela Park have developed a rapid method of testing such lamps for the quantity of chemical on their cathodes without breaking open or lighting the tubes. The lamp is compared in an electronic circuit with one having an uncoated cathode. When current is applied, the coated cathode is slower to increase in temperature. The difference is roughly proportional to the weight of the emission coating, and it can be read on a meter.

## RADIOACTIVE SILICONES

Our Silicone Products Department in Waterford, New York, recently made joint announcement with Abbott Laboratories of North Chicago, Illinois, of an Abbott Laboratories project making radioactive silicones available for medicine and industry. Such silicones may prove to be a valuable research tool in certain areas. Radioactive silicone fluids, for example, are made readily measurable in minute amounts by the incorporation of Carbon-14, and they are expected to offer a clearer insight into the behavior of silicones in the human body than could previously be obtained.

The new fluids have been designed for laboratory and clinical test work. They will not be a part of finished medicinals sold to the consumer. In conformity with Atomic Energy Commission practice, such initial studies must be conducted on animals only.

## FILM FIXER

What camera fan hasn't spent hours in a darkroom trying to minimize the harmful effects of scratches, dust, or fingerprints on his favorite 35-mm negative? Thanks to Dr. C. Guy Suits, vice president and director of our Research Laboratory, all three of these defects can now be corrected.

Dr. Suits, one of whose hobbies is photography, found that most of the troublesome damage from scratches occurred in the film base or in the gelatine overcoat, rather than in the silver image between. He reasoned that a liquid with the right properties might fill the "valleys" formed by scratches and eliminate the valley side surfaces that scatter light. Although glycerine has been used for this purpose, it is very viscous and forms bubbles.

He finally found the solution in a silicone oil, which has been named Refractasil. Not only did it solve the scratch problem, it also turned out to be a highly satisfactory cleaner, removing fingerprints like magic. And with a special circulating container designed by Dr. Suits, it served to remove dust particles, as well.

Equipment using the Suits technique may soon be marketed by another manufacturer. Refractasil, the silicone oil, is already in production in our Silicone Products Department at Waterford, New York.

*Progress Is Our Most Important Product*

GENERAL ELECTRIC